

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

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PUBLIC HEARING
REGARDING WATER RIGHT APPLICATIONS FOR THE
DELTA WETLANDS PROJECT
PROPOSED BY DELTA WETLANDS PROPERTIES
FOR WATER STORAGE ON WEBB TRACT, BACON ISLAND,
BOULDIN ISLAND, AND HOLLAND TRACT
IN CONTRA COSTA AND SAN JOAQUIN COUNTIES

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HELD AT

901 P STREET
SACRAMENTO, CALIFORNIA
WEDNESDAY, JULY 9, 1997
9:00 A.M.

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Reported by:

MARY GALLAGHER, CSR #10749

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WEDNESDAY, JULY 9, 1997, 9:00 A.M.

SACRAMENTO, CALIFORNIA

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HEARING OFFICER STUBCHAER: Good morning.

We'll reconvene the Delta Wetlands hearing. There were some questions yesterday about the order of appearance. There are copies -- where are they, Jim, copies of the order of appearance? Have you distributed them already?

MR. CANADAY: No. Some people have them.

HEARING OFFICER STUBCHAER: Okay. Where are the copies that you had? Okay. Mr. Canaday has those for those who need it.

Also, up on the screen is the order of cross-examination. And I'm sorry if I misspelled some names on there. I didn't get some names. This is from the notes I took yesterday. And it may be that some of the persons who made policy statements will not wish to cross-examine, but they're at the top of the list.

The first thing we're going to do today is hear from the City of Stockton on their settlement agreement.

Good morning.

MS. CAHILL: Thank you, Mr. Stubchaer. Good morning, Mr. Brown.

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1 MR. BROWN: Good morning.

2 MS. CAHILL: As we indicated yesterday, we
3 thought that the City of Stockton --

4 THE COURT REPORTER: I'm sorry, your name.

5 MS. CAHILL: I'm Virginia Cahill.

6 HEARING OFFICER STUBCHAER: Excuse me, I
7 wanted to announce that we have Mary Gallagher as our
8 Court Reporter today. And she won't recognize you so
9 perhaps you could state your name.

10 MS. CAHILL: Yes. Virginia Cahill,
11 C-A-H-I-L-L, representing the City of Stockton.

12 As we indicated yesterday we thought that the
13 City of Stockton had reached an agreement with Delta
14 Wetlands. I took that agreement to the Stockton City
15 Council last night, which has approved it. And so we
16 brought today two documents in what is Cahill overkill,
17 a stipulation and the underlining agreement.

18 By way of background, when the Board's hearing
19 notice came out the City of Stockton filed a notice of
20 intent to appear as an interested party. We are,
21 certainly, interested because if you read the legal
22 definition of the Delta, the boundary runs right
23 through the City of Stockton. Half of the City is
24 within the Delta, and the other half is immediately
25 adjacent thereto.

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1 The City has itself filed a water rights
2 application to divert water from the Delta. And that's
3 Application Number 30531. So the City filed written
4 testimony which basically asked the Board to put a
5 condition in any permit granted to Delta Wetlands that
6 would make it junior to the City of Stockton's
7 application.

8 As part of its efforts to reach accommodation
9 with the parties raising concerns about the project,
10 Delta Wetlands approached the City and asked if we
11 couldn't, perhaps, agree on a permit term. And that's
12 what we've done.

13 So today we're submitting a stipulation
14 between the parties that -- wherein we jointly ask the
15 Board to insert the following language in any permit,
16 or license granted by the Board to Delta Wetlands on
17 the applications that are the subject of this hearing.

18 And the permit term reads:

19 This permit, or license shall be junior in
20 priority to any application filed by the City of
21 Stockton to obtain the water reasonably required to
22 adequately supply the beneficial needs of the Stockton
23 urban area, or any of the inhabitants, or property
24 owners therein.

25 And we think this partially answers the

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1 question posed in your hearing issue number one, which
2 is: What permit terms and conditions should the Water
3 Board include in any water right permit?

4 So we brought today copies of the stipulation
5 and the agreement. I've given the originals and 13
6 copies to Board staff. I circulated some through the
7 audience, and there are additional ones available to be
8 picked up. I don't know where they've all moved. So
9 I'm going to put some on this chair. I don't know if
10 ordinarily we number stipulations--

11 MS. LEIDIGH: Yeah, we should.

12 MS. CAHILL: Because we had used numbers for
13 the testimony that we had previously filed. This would
14 be Stockton Number Exhibit 10, the stipulation. And
15 the agreement would be Stockton Exhibit 11.

16 The agreement had said that Delta Wetlands
17 would submit it as part of its case. So you might want
18 to also give it the Delta Wetlands next in order
19 number.

20 MS. BRENNER: It would be Delta Wetlands's
21 Number Exhibit 31 and 32.

22 MS. CAHILL: And so we would offer these two
23 exhibits in evidence, at which time we would not
24 cross-examine any other parties. And we wouldn't
25 believe it's necessary to admit our previously

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1 submitted testimony.

2 HEARING OFFICER STUBCHAER: All right. Are
3 there any objections to receiving these into evidence?
4 Mr. Jackson.

5 MR. JACKSON: Yes. I'd like to ask a
6 question. Stockton Record is reporting this morning
7 that there's been some kind of contract between
8 Stockton and Delta Wetlands for the use of the water.

9 Is that part of this agreement?

10 MS. CAHILL: No, it is not. And there is no
11 such agreement. The only agreement between Stockton
12 and Delta Wetlands is the agreement that we distributed
13 this morning.

14 MR. JACKSON: So you are not being added as a
15 place of use for the Delta Wetlands Project?

16 MS. CAHILL: No.

17 MS. BRENNER: I don't know whether we are
18 already in it or not.

19 MR. JACKSON: I have no objection.

20 HEARING OFFICER STUBCHAER: All right.
21 Hearing no objections, the exhibits are accepted.

22 MS. CAHILL: Thank you very much.

23 HEARING OFFICER STUBCHAER: Thank you. And I
24 heard you state that you don't wish to cross-examine.

25 MS. CAHILL: That's correct.

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1 HEARING OFFICER STUBCHAER: Okay. And Mr. --
2 is Mr. Lasson here today? We didn't determine
3 yesterday if he wished to cross-examine. If he's not
4 here he, probably doesn't, but Mr. Turner reserved the
5 right to cross-examine. Okay. I guess that's been
6 settled.

7 Okay. Ms. Schneider, is your witness present?

8 MS. SCHNEIDER: Yes, he is.

9 HEARING OFFICER STUBCHAER: All right.
10 Proceed.

11 ---oOo---

12 DIRECT TESTIMONY OF DELTA WETLANDS PROPERTIES

13 BY ANNE SCHNEIDER

14 MS. SCHNEIDER: Would you, please, state your
15 name and briefly summarize your professional expertise.

16 DR. McLANDRESS: My name is Bob McLandress.
17 I'm the Director of Waterfowl and Wetland Programs for
18 the California Waterfowl Association.

19 I have a Masters and Ph.D. in Ecology from the
20 University of California at Davis, and have been
21 employed conducting field studies, or receiving formal
22 education in pursuit of a career in waterfowl and
23 wetland ecology for the past 30 years.

24 Since 1985, I and my staff have conducted
25 waterfowl surveys, research, and wetland advisory

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1 services in the Sacramento-San Joaquin River Delta.

2 Some of our most significant accomplishments
3 in the Delta were studies of nesting waterfowl in the
4 Suisun Marsh, assisting the Tuscany Research Institute
5 in the creation of waterfowl habitats on Mandeville
6 Island, evaluating success in meeting mitigation
7 requirements for powerline impacts in the Delta on Palm
8 Tract, and advising on the creation of a private
9 wildlife habitat area on Brack Tract.

10 MS. SCHNEIDER: Dr. McLandress, did you
11 prepare Exhibit DW 21, which describes your
12 professional opinion of the adequacy of the Delta
13 Wetlands's Habitat Management Plan?

14 DR. McLANDRESS: Yes, I did.

15 MS. SCHNEIDER: Would you, please, summarize
16 your written testimony.

17 DR. McLANDRESS: I won't go through all 20
18 pieces. In my opinion, the Habitat Management Plan
19 indicates substantial benefits to wildlife. And I
20 think it will serve to enrich wildlife resources for
21 the entire Delta.

22 The benefits are far in excess of the
23 no-project alternative described in the DEIR, because
24 the habitat islands provide year round benefits for
25 wildlife, which is not offered by the no-project

1 alternative. The benefits lost from flooding reservoir
2 islands will be more than compensated from habitat
3 islands in my opinion.

4 Many species not presently using Delta project
5 islands will be attracted. Anything nearby in the
6 Delta and also in the Sacramento Valley. Also I
7 believe that local breeding waterfowl will be extremely
8 well-served. Present conditions are not good for
9 breeding waterfowl. And I think the project will
10 provide excellent benefits for breeding waterfowl.

11 I guess, most importantly, it uses an adaptive
12 resource management approach which allows for future
13 modification of habitats based on the results of
14 ongoing monitoring and annual review by a Habitat
15 Management Advisory Committee.

16 Thank you.

17 MS. SCHNEIDER: That concludes our direct
18 testimony. I would like to raise some of our
19 availability limitations.

20 HEARING OFFICER STUBCHAER: Yes.

21 MS. SCHNEIDER: And request to -- a poll to
22 see if anyone has cross, especially for several of the
23 Jones and Stokes's staff who are here and available
24 just for cross.

25 HEARING OFFICER STUBCHAER: Yes. I thought

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1 that would be the logical next step. How about the
2 culture resources witness? Shall we see if there are
3 any questions for that witness?

4 MS. SCHNEIDER: Yes. Dana McGowan.

5 HEARING OFFICER STUBCHAER: Does anyone wish
6 to cross-examine Dana McGowan on culture resources?
7 None. So that witness may be excused.

8 MS. SCHNEIDER: Okay. Mr. Wayne Shijo who is
9 the expert for Jones & Stokes on boat and road traffic.

10 HEARING OFFICER STUBCHAER: Boat and road
11 traffic?

12 MS. SCHNEIDER: Right.

13 HEARING OFFICER STUBCHAER: Does anyone wish
14 to examine that witness? No one. That witness is
15 excused.

16 MS. SCHNEIDER: Mr. James Easton, who
17 assisted Mr. Rawlings on Swainson's hawk and greater
18 sandhill issues. Mr. Easton is an expert on those
19 particular species.

20 HEARING OFFICER STUBCHAER: Does anyone wish
21 to examine Mr. Easton? Seeing no response, that
22 witness may be excused.

23 MS. SCHNEIDER: And Mr. McLandress, who has
24 flown here from Canada.

25 HEARING OFFICER STUBCHAER: For three minutes.

1 Okay.

2 MS. SCHNEIDER: So Dr. McLandress as well,
3 are there questions for him?

4 HEARING OFFICER STUBCHAER: That's on habitat?

5 MS. SCHNEIDER: That's correct, that's on the
6 Habitat Management Plan.

7 HEARING OFFICER STUBCHAER: Does anyone wish
8 to question Mr. McLandress? I see no response.

9 MS. SCHNEIDER: Okay.

10 HEARING OFFICER STUBCHAER: And staff may
11 respond, too. I want to point that out, and Board
12 Members. It's not just limited to the audience.

13 MS. SCHNEIDER: Someone should ask
14 Mr. McLandress at least one question.

15 HEARING OFFICER STUBCHAER: Okay. How is the
16 weather in Canada?

17 DR. McLANDRESS: I was just going to offer
18 that one without the question. It's definitely cooler
19 than here.

20 HEARING OFFICER STUBCHAER: Ms. Forster asked
21 if Mr. Cowell was here from Caltrans.

22 MEMBER DEL PIERO: He didn't show up.

23 MS. SCHNEIDER: We have Mr. Rawlings as well,
24 who will be here and was the one yesterday that
25 testified at length on the HMP. He will continue to

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1 be available.

2 MR. SUTTON: Mr. Stubchaer?

3 HEARING OFFICER STUBCHAER: Yes.

4 MR. SUTTON: I talked to Mr. Cowell yesterday
5 and he indicated that he did not wish to cross-examine
6 on the traffic issue. That he would present what they
7 wanted to do in their case in chief.

8 HEARING OFFICER STUBCHAER: Thank you,
9 Mr. Sutton.

10 All right then, have a good trip back to
11 Canada. You're excused.

12 DR. McLANDRESS: Thank you.

13 MS. SCHNEIDER: I have --

14 HEARING OFFICER STUBCHAER: Maybe we could go
15 through the whole list this way.

16 MS. BRENNER: As to the availability
17 limitations, one Jones & Stokes staff person,
18 Mr. Steve Chainey helped prepare the testimony with
19 Mr. Rawlings. And Mr. Chainey, as we noted in our
20 correspondence, is not available until the week of
21 July 22nd.

22 And Mr. John List is here today. This is the
23 only day he is here. And as I mentioned yesterday, he
24 would like to be able to leave by 2:00 if possible.
25 But he is, again, only here today. And then he's out

1 of the country.

2 HEARING OFFICER STUBCHAER: And he's here on
3 salinity?

4 MS. BRENNER: Right.

5 HEARING OFFICER STUBCHAER: He testified on
6 salinity?

7 MS. BRENNER: That's correct.

8 HEARING OFFICER STUBCHAER: Does anyone wish
9 to cross-examine John List? We have two persons who
10 wish to cross-examine. Are there any other time
11 constraints that we have?

12 MS. BRENNER: No, that is all.

13 HEARING OFFICER STUBCHAER: If there are no
14 objections, we could -- Mr. Maddow and Mr. Jackson
15 cross-examine first, to accommodate that schedule.

16 MS. BRENNER: Okay.

17 HEARING OFFICER STUBCHAER: Are there any
18 objections to changing the order?

19 MR. JACKSON: He's got to leave at 2:00?

20 MS. BRENNER: Yes.

21 MR. JACKSON: My objection, I would prefer not
22 to take him out of order, but if you would like me to
23 start, I'll start by making my due process argument in
24 regard to the unfairness of this hearing, because 20
25 minutes to address 15 people on a very large water

1 right is a complete deprivation of both Federal and
2 State Constitutional Rights.

3 HEARING OFFICER STUBCHAER: Mr. Jackson, were
4 you here yesterday when we discussed the time issue on
5 cross-examination?

6 MR. JACKSON: Yes, sir.

7 HEARING OFFICER STUBCHAER: It's not an
8 absolute limit. When you -- you can tell me when
9 you're finished with 20 minutes that you need more time
10 and say why, and you can go on.

11 MR. JACKSON: Thank you, sir.

12 HEARING OFFICER STUBCHAER: I don't do that as
13 a constitutional deprivation of your constitutional
14 rights.

15 MR. JACKSON: Well, I understand you don't, or
16 you wouldn't have scheduled it that way. But this is a
17 very important matter for the most threatened area of
18 California. And this is a huge water rights hearings
19 with many complicated questions. And 20 minutes for 15
20 witnesses is --

21 HEARING OFFICER STUBCHAER: Well, as I said,
22 if more time is required it will be granted. Just as a
23 matter of interest, there are 23 potential
24 cross-examiners. If each cross-examiner took an hour,
25 that's 23 hours and that's a major portion of the time

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1 remaining.

2 We have about 23 -- let's see, 32 hours
3 scheduled, remaining in the hearing. And if we have to
4 go on to the other dates we mentioned beyond that,
5 we'll do so. But in order to try and -- pardon?

6 MS. LEIDIGH: All night sessions.

7 HEARING OFFICER STUBCHAER: All night
8 sessions. The hearing officer doesn't have the stamina
9 to stay alert.

10 Anyway, we're -- we set a goal to try to
11 complete the hearing in a reasonable period of time,
12 but we do not want to deprive anyone of due process.

13 All right, with that you think that changing
14 the order, Mr. Jackson, would deprive you of due
15 process?

16 MR. JACKSON: No, sir.

17 HEARING OFFICER STUBCHAER: All right. If you
18 went in the ordinary order, we wouldn't get to you
19 until tomorrow, probably. So with that we'll start --
20 begin the cross-examination with Contra Costa Water
21 District Robert Maddow.

22 And for the benefit of the audience those who
23 may not know our procedures, the cross-examination is
24 conducted by one person. The Applicant is -- is
25 represented by a panel. And the question may be asked

1 of any member of the panel, or answered by the member
2 of the panel who has the most knowledge on the question
3 asked.

4 MR. MADDOW: Mr. Stubchaer, if I may have
5 just a moment, I didn't realize we were going to be up
6 first thing this morning.

7 HEARING OFFICER STUBCHAER: All right.
8 Mr. Jackson, are you ready to go?

9 MS. BRENNER: Mr. Stubchaer, we need also need
10 a few minutes, because Ms. Leidigh wants to have all of
11 our witnesses up here at once. And it's a major
12 reorganization required.

13 HEARING OFFICER STUBCHAER: All right. We
14 tried to save the chairs over there. We recognize the
15 table wasn't big enough to have everyone sit at it. So
16 we'll have to play musical chairs, but we'll take a few
17 minutes to make the necessary arrangements.

18 Off the record.

19 (Off the record from 9:20 a.m. to 9:22 a.m.)

20 HEARING OFFICER STUBCHAER: Okay. Come back
21 to order, please.

22 Mr. Maddow, are you prepared to cross-examine,
23 or are you rushed because of the change in order?

24 MS. BRENNER: I'm a little bit rushed by the
25 change in order. The 20-minute time limitation

1 provides another type of rush. What I would like to
2 do, Mr. Stubchaer, if this is acceptable to the Board,
3 is to start in the manner in which I had intended to
4 start when I was assuming that I was, in essence, going
5 to be third in the order. And that assumption was that
6 Mr. Nomellini would be first followed by Mr. Roberts in
7 just following your order.

8 We do have a number of questions for Dr. List.
9 Dr. List produced testimony and exhibits which are
10 largely focused on my client, Contra Costa Water
11 District. There are some other issues that came up
12 through witnesses who appeared before him, which have
13 given rise to a few questions. And I'd like to touch
14 on those.

15 Frankly, I'll say in advance that I would
16 suspect that it will be about the 20-minute point when
17 we'll be ready to ask a question of Dr. List.

18 One of my concerns is we also have a number of
19 other questions for subsequent witnesses, in particular
20 Dr. Kavanaugh. And we may not be able to get to those
21 in too orderly a fashion, because, frankly, I had
22 expected that some of the cross-examination by others
23 might have touched on some of the issues that I might
24 have for Dr. Kavanaugh.

25 So when we're finished, I would not be

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1 surprised to hear myself asking you if I could have
2 permission to at some point be able to ask just a few
3 questions of Dr. Kavanaugh.

4 HEARING OFFICER STUBCHAER: All right.

5 MS. BRENNER: With those -- with those
6 comments, I'm willing to give it a try.

7 HEARING OFFICER STUBCHAER: All right. And as
8 I stated twice before, if 20 minutes is a problem then
9 tell me you need more time and we'll grant it..

10 MR. MADDOW: Thank you.

11 ---oOo---

12 CROSS-EXAMINATION OF DELTA WETLANDS PROPERTIES

13 BY CONTRA COSTA WATER DISTRICT

14 BY ROBERT MADDOW

15 MR. MADDOW: For the Court Reporter, my name
16 is Robert Maddow, M-A-D-D-O-W, and I'm appearing on
17 behalf of the Contra Costa Water District.

18 First I have a question for Mr. Bogdan. On
19 page 11 of Exhibit Delta Wetlands 6, you say that
20 during periods of non-storage Delta Wetlands will
21 manage shallow water within an interlevee system on the
22 reservoir islands.

23 My question is in search of an explanation of
24 managing shallow water. How deep will that water be,
25 Mr. Bogdan, and what will the frequency of that

1 occurrence of that water be?

2 MR. BOGDAN: I actually don't know the details
3 of the -- of that particular feature of the project
4 description of the Delta Wetlands Project. Maybe
5 someone from the Delta Wetlands team would like to
6 describe that feature, that description of the project.
7 I was simply in my testimony summarizing the project
8 description.

9 MR. MADDOW: Thank you. Then I'll ask the
10 same question of Mr. Forkel.

11 How deep will the water that is going to be
12 managing -- involved in the managing of shallow water
13 within an interlevee system during a period of
14 non-storage be? How deep will the water be, and how
15 frequently will such water be present?

16 MR. FORKEL: During non-storage periods the
17 shallow water management on the reservoir islands will
18 try to maintain about an average of one-foot deep
19 across the islands. So it will be approximately 12
20 inches, but it would range from 0 to 24 inches.

21 MR. MADDOW: And, in other words, Mr. Forkel,
22 you're going to keep the reservoir bottom flooded and
23 you're going to do so using which water rights?

24 MR. FORKEL: We would be using our existing
25 water rights both either riparian or 1922 rights to

1 provide the shallow water management.

2 MR. MADDOW: Okay. So you would be using
3 riparian rights for some portion of this water that
4 you'll be storing up to a depth of one foot during
5 non-storage period of operations of the reservoir
6 islands. Is that what I understand you to say?

7 MR. FORKEL: That's correct.

8 MR. MADDOW: Riparian rights. Okay. And in
9 addition to riparian rights you're going to use for
10 storage, you're going to use your 1922 appropriative
11 rights; is that correct?

12 MR. FORKEL: Correct.

13 MR. MADDOW: Okay. And you're going to use
14 those rights for which purpose? What's -- what's the
15 beneficial use for which you would be using those 1922
16 rights?

17 MR. FORKEL: We would be creating shallow
18 water management and habitat.

19 MR. MADDOW: Okay. That's not an irrigation
20 purpose, I take it?

21 MR. FORKEL: No.

22 MR. MADDOW: And are any -- can you tell us
23 which period within calendar -- any calendar year you
24 would be using those 1922 rights for that storage
25 purpose?

1 MR. FORKEL: The 1922 rights?

2 MR. MADDOW: Yes.

3 MR. FORKEL: Well, they would begin in the
4 winter and fall. And I don't know the specific month
5 we would use our 1922 right. I'd have to review that.

6 MR. MADDOW: Perhaps, that's a question we can
7 put to Mr. Easton in a few moments. That I understand,
8 sir, that you are not the water rights witness. You
9 are the operations witness?

10 MR. FORKEL: Yes. Sure.

11 MR. MADDOW: I just wanted to understand this
12 from the basis of your testimony.

13 MS. BRENNER: I have -- excuse me. I'd just
14 like to raise a question. Some of these are legal
15 issues. And I think that there will be an opportunity
16 to brief these at the end of the hearing.

17 MR. NOMELLINI: We can't hear you, Anne.

18 MS. BRENNER: I don't want to start a pattern
19 of objections, but these questions related to the legal
20 extent of the use of the riparian, or the 1922 priority
21 right. Shouldn't it go to expert witnesses who are --
22 who have testified not on legal issues? We will
23 address these issues in briefs in closing.

24 HEARING OFFICER STUBCHAER: How will you know
25 the questions if he doesn't get to ask them during the

1 cross-examination?

2 MS. BRENNER: I'm pleased to have him ask, but
3 I think it should be on the record that Mr. Forkel and
4 Mr. Easton are not lawyers and can answer questions on
5 engineering issues, but not necessarily offer you
6 conclusions that are legal conclusions.

7 MR. MADDOW: Mr. Stubchaer, I recognize --

8 HEARING OFFICER STUBCHAER: Time out. Time
9 out.

10 MR. MADDOW: I beg your pardon.

11 HEARING OFFICER STUBCHAER: Just a moment
12 please.

13 (Discussion with staff counsel held off the record.)

14 HEARING OFFICER STUBCHAER: Mr. Maddow, you
15 may ask your questions. The witnesses may answer to
16 the best of their ability. If they think it requires a
17 legal conclusion, they may so state. And then your
18 question will be deferred to the attorney for Delta
19 Wetlands for rebuttal -- not rebuttal, but for
20 answering later.

21 MR. MADDOW: Mr. Stubchaer, again, I hope this
22 isn't cutting into my time, I recognize that
23 distinction. I was attempting to -- to raise some
24 questions that I believe relate to the day in the life
25 of Delta Wetlands that Mr. Forkel --

1 HEARING OFFICER STUBCHAER: Yes.

2 MR. MADDOW: -- testified to yesterday. He
3 went through a series of the restrictions that are
4 applicable. And I was trying to understand his
5 understanding of those restrictions.

6 HEARING OFFICER STUBCHAER: I understand that.
7 And as far as cutting into your time, the clock stops
8 during objections, discussions, and answers.

9 MR. MADDOW: I understand.

10 Mr. Forkel, you talked about a number of
11 restrictions on Delta Wetlands's operations as you went
12 through the day in the life of yesterday, which I
13 thought was an excellent approach.

14 Isn't there a 250,000 acre limit on your
15 exports in any calendar year under the biological
16 opinions?

17 MR. FORKEL: Yes, there is.

18 MR. MADDOW: So that's another check that you
19 would put into your list of operational considerations?

20 MR. FORKEL: That's right.

21 MR. MADDOW: Did you review any of the
22 modeling work that has been done by any of the persons
23 who testified yesterday with regard to the actual
24 exports that showed up in their simulations?

25 MR. FORKEL: Yes, I have.

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1 MR. MADDOW: If, for example, there is a
2 calendar year in which exports would appear to be as
3 high as 320,000 acre feet in your simulation -- in
4 those simulations, would that cause you, as the
5 operator, to restrict the operations of the Delta
6 Wetlands islands?

7 MR. FORKEL: If that -- if the discharges
8 occurred during the calendar year, that would result in
9 a limitation on the project. Unfortunately, the
10 modeling was done on a water year. I think you'd have
11 to go back and check on a calendar year basis, but it
12 may cause the project to have some additional
13 limitations placed upon it.

14 MR. MADDOW: And as far as you know,
15 Mr. Forkel -- and I understand that your testimony was
16 for a limited purpose, as far as you know would that
17 additional restriction have an impact on the yield of
18 the Delta Wetlands Project?

19 MR. FORKEL: I don't know. I'd have to check.

20 MR. MADDOW: If a senior water rights holder
21 would be injured by virtue of the operation of the
22 Delta Wetlands Project, would that be considered
23 another constraint on your operations?

24 MR. FORKEL: Would you repeat the question?

25 MR. MADDOW: If a senior water rights holder

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1 would be injured by the operations of the Delta
2 Wetlands Project, would that be considered a constraint
3 on your operations?

4 MR. FORKEL: I would believe so.

5 MR. MADDOW: If the senior holder can pump
6 when the X2 Line is west of Chipps Island, and if your
7 operation, which you said yesterday could move the X2
8 Line up to two and a half kilometers, if the senior
9 water rights holder would be unable to pump because of
10 that movement of the -- because -- excuse me, because
11 of movement of the X2 Line of less than 2.5 kilometers,
12 would that be a constraint on your operations?

13 In other words, you're operating within the
14 2.5 kilometer constraint; you move to 2.4 kilometers.
15 It causes a senior water right holder to be no longer
16 able to operate because of constraints in their
17 operation of the location of X2.

18 Would you consider the impact of the Delta
19 water operations that has the relationship I just
20 described to the water rights of a senior water rights
21 holder, would you consider that to be an additional
22 constraint on your operations?

23 MR. FORKEL: That's a pretty complicated
24 question. I didn't quite follow it.

25 MR. MADDOW: If you're going to move the X2

1 Line enough to cause a senior water rights holder to
2 have to stop pumping, does that have an impact on your
3 operations?

4 MR. FORKEL: I really don't know.

5 MR. MADDOW: Didn't you testify that one of
6 the constraints on Delta Wetlands's operations is the
7 relationship to senior water rights holders?

8 MR. FORKEL: Yes.

9 MR. MADDOW: A couple of questions for
10 Mr. Easton. Thank you.

11 Mr. Easton, I believe it was also in your
12 testimony that you said that the Delta Wetlands would
13 not defer -- if its diversions would interfere, for
14 example, Contra Costa Water District's exercise of its
15 appropriate rights.

16 Is that correct?

17 MR. EASTON: Yes.

18 MR. MADDOW: In reaching that conclusion, did
19 you give any consideration to the issue which I was
20 just attempting to discuss with Mr. Forkel; that is the
21 restrictions on the operations of the Contra Costa
22 Water District related to the location of the X2 Line
23 if Delta Wetlands by its operations including
24 diversions of up to 9,000 cubic feet per second caused
25 the X2 Line to move to a point where it eliminated

1 Contra Costa's ability to pump; would you consider that
2 to be interference with CCDW's exercise of its
3 appropriate rights?

4 MR. EASTON: Yes.

5 MR. MADDOW: So can I assume, then, that if
6 your water rights opinion was used in -- your water
7 rights opinion as a professional engineer with the
8 qualifications you testified to yesterday, if your
9 water rights opinion was being given to Mr. Forkel, the
10 operator, would you tell him to shut off if he's going
11 to have that adverse impact on Contra Costa's rights?

12 MR. EASTON: I testified yesterday that there
13 would have to be thorough coordination with the other
14 exports from the Delta. The Delta Wetlands operators
15 would have to be thoroughly familiar with what the
16 plans are and would have to schedule the Delta
17 Wetlands's operation so there would be no interference
18 with senior water rights in the exercise of those
19 senior water rights.

20 So if the Delta Wetlands's operations, planned
21 operations did, in fact, interfere with a senior water
22 rights operations, then the Delta Wetlands's operations
23 would have to be modified accordingly so that there was
24 no interference.

25 MR. MADDOW: Thank you. On page 25 of your

1 written testimony, Mr. Easton, you said that there
2 would be no significant -- there would be no
3 significant redirected impact as a result of the Delta
4 Wetlands's operation.

5 Can you explain what you mean by redirected
6 impact?

7 MR. EASTON: Well, I think that was in
8 connection with my testimony with regard to how the
9 Delta Wetlands Project would fit within the CalFed
10 process and the ultimate CalFed solution.

11 Certainly, in connection with that, as I've
12 just mentioned, the Delta Wetlands Project will have to
13 be operated in a manner so that senior water rights are
14 respected; so regulations are met every day.

15 MR. MADDOW: Would a salinity increase at the
16 intake of the Contra Costa canal as a result of Delta
17 Wetlands's operations be a redirected impact?

18 MR. EASTON: I'm not qualified to answer --

19 MR. MADDOW: Thank you?

20 MR. EASTON: -- salinity questions.

21 MR. MADDOW: Let's talk about topping off for
22 a moment. What water rights are being used for topping
23 off? That's the subject I want to talk to you about
24 for just a moment.

25 Mr. Forkel testified a few moments ago that

1 the island will be kept flooded. And he testified that
2 the water rights that would be used for that would be a
3 combination of the riparian rights and the 1922
4 appropriative rights used by the Delta Wetlands. And
5 he also testified that there would be operations in the
6 winter months pursuant to those -- for those flooding
7 operations.

8 Referring to the tables in your exhibit, I
9 believe it's Tables 9 through 12, Mr. Easton. Can you
10 tell me the season of diversion under those existing
11 water rights?

12 MR. EASTON: Yes. The season of diversion is
13 March 1st through November 1st.

14 MR. MADDOW: Can you tell me the purpose of
15 use under those rights?

16 MR. EASTON: Purpose of use is for irrigation.

17 MR. MADDOW: In describing the water rights
18 applications that are currently pending before this
19 Board for this project, did you describe petitions to
20 make changes in those existing rights?

21 MR. EASTON: No.

22 MR. MADDOW: How can those rights then --
23 Strike that.

24 Can those rights, in your opinion as the water
25 rights engineer, can those rights be used for the

1 purpose of diverting water on to the reservoir islands
2 in the winter months for the purpose of providing that
3 shallow water management purpose that Mr. Forkel
4 described?

5 MR. EASTON: I think that's a legal question
6 that should be addressed to Ms. Schneider.

7 MR. MADDOW: But it is your testimony that
8 there's not pending any petition for change in regard
9 to the existing appropriative rights for the reservoir
10 islands; is that correct?

11 MR. EASTON: That's right.

12 MR. MADDOW: Okay. Thank you. I have one
13 more, Mr. Easton, just a moment please.

14 MR. EASTON: I'll wait.

15 MR. MADDOW: Just one moment. No, as a matter
16 of fact, let me move on to Mr. Paff, if he hasn't gone
17 back to Nevada. Thank you, Mr. Easton.

18 And for the Court Reporter this is Mr. Don
19 Paff, P-A-F-F.

20 Mr. Paff, yesterday I believe you testified
21 that as the manager of the Bureau of Reclamations
22 Operations in the late 1980's, you would have been
23 happy to have the Delta Wetlands Project available to
24 you as a tool to assist in coping with the drought.

25 Is that a fair paraphrasing of your testimony?

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1 MR. PAFF: That's correct.

2 MR. MADDOW: Have you reviewed the results of
3 the modeling that's been done by the Delta Wetlands
4 experts which is in evidence concerning the yield of
5 the Delta Wetlands Project during that period of time?

6 MR. PAFF: No, I have not.

7 MR. MADDOW: If I told you that -- that there
8 is within Delta Wetlands exhibits, for example, Delta
9 Wetlands's Exhibit 10 on Table 3, there are indications
10 that those simulations show that Delta Wetlands Project
11 produced no water in 1990, or 1991.

12 Would you still feel that this would have been
13 a value tool for you to use in coping with that portion
14 of the drought?

15 MR. PAFF: Yes, I do still believe that it
16 would be a valuable asset.

17 MR. MADDOW: Perhaps, you can tell me how a
18 project that has no yield would have had that benefit
19 for the Bureau.

20 MR. PAFF: Although not analyzed in detail, or
21 environmentally evaluated, the island could have
22 provided some additional capabilities for management of
23 Delta water and the transfer water, banking water
24 offsetting buffered water that would be needed during
25 the time that the Delta was out of balance. It could

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1 have provided an additional facility to more
2 efficiently operate the entire San Joaquin-Sacramento
3 system.

4 MR. MADDOW: So it would be in the nature of a
5 regulating tool as opposed to a water supply source, is
6 that a fair statement?

7 MR. PAFF: That's correct.

8 MR. MADDOW: Okay. Thank you, Mr. Paff,
9 that's all that I had. Thank you very much.

10 Mr. Stubchaer, in the interest of time I'm
11 trying to go quickly here and the order in which I
12 approach these questions may be a little spotty. And I
13 apologize for that. And I particularly apologize to
14 the witnesses and Ms. Schneider for that. I'm not
15 attempting to be cute, it's just that I'm trying to
16 go --

17 HEARING OFFICER STUBCHAER: We appreciate you
18 going out of order to accommodate the witness.

19 MR. MADDOW: And, again, let me reiterate that
20 I have every intention of asking a series of questions
21 of Dr. List, but there are things that I wanted to
22 establish first. And the way in which I wanted to do
23 that was to follow the order in which these witnesses
24 appeared. I have a few questions for Dr. Brown.

25 Yesterday I heard counsel for Delta Wetlands

1 in the opening statement say that at 154,000 acre feet
2 of yield this project was -- I believe she said this
3 project is barely feasible.

4 It's my understanding -- and again this is not
5 based on your testimony or her statements, but just my
6 inferences from what I have read, that her figure of
7 154,000 acre feet is probably based upon modeling work,
8 simulation work that you have done. And my questions
9 will, therefore, be in regard to that modeling or
10 simulation work. I said that and made a little speech
11 in lieu of asking a bunch of questions.

12 HEARING OFFICER STUBCHAER: That's okay. You
13 weren't testifying.

14 MR. MADDOW: It was foundation.

15 Dr. Brown, let me ask a couple of questions
16 about those models. I spoke to Mr. Forkel a few
17 moments ago about a constraint that exists with a
18 biological opinion regarding how much water could be
19 exported in a calendar year. And I believe that number
20 is 250,000 acre feet per year.

21 Are you familiar with that provision in the
22 biological opinion?

23 DR. BROWN: Yes, I am.

24 MR. MADDOW: And -- and I believe that in the
25 simulations which you have done -- which I believe you

1 have done, there is an indication that, for example, in
2 the calendar year 1978 that the total water which was
3 exported would have been more in the nature of 320,000
4 acre feet.

5 I recognize those simulations were done on a
6 water year basis. I would ask whether you believe that
7 based upon your simulations where that 320,000 acre
8 feet acre number is -- is at least close?

9 DR. BROWN: Well, the 320,000 what we
10 simulated is accurate under what we simulated. But
11 with this new requirement that is in the biological
12 opinion for a calendar year 250, that 320 if it
13 occurred in a calendar year would no longer be allowed
14 in the real operation.

15 The testimony yesterday was that a very large
16 number of layered restrictions is being placed on the
17 Delta Wetlands in addition to the basic water quality
18 control plan. And this is one example of that, where
19 an additional limit -- the yield in that year is less
20 than what we have simulated might have occurred in that
21 year.

22 MR. MADDOW: Dr. Brown, in your Delta
23 Wetlands's operations studies using DeltaSOS did you
24 take into account any reduction in water use through
25 the elimination of existing agricultural operations?

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1 DR. BROWN: Yes, we did.

2 MR. MADDOW: You did. And how is that water
3 accounted for during summer periods, that saved
4 irrigation water?

5 DR. BROWN: In the DWR modeling, which is the
6 basis for our incremental analysis for the Delta
7 Wetlands Project, there is an estimate of the total
8 consumptive use in the Delta.

9 A portion of that consumptive use is being
10 consumed on the four project islands. The land acreage
11 of the four Delta Wetlands islands is approximately
12 five percent. So just to keep everyone with me, about
13 five percent of the consumptive use demand is reduced.
14 Therefore, there is less consumptive use simulated in
15 an irrigation pattern on month-by-month basis in the
16 Delta.

17 That water is then available for export if it
18 would have been permitted, or for outflow. And so that
19 reduction in irrigation use on the project islands is
20 one of the adjustments used in the DeltaSOS run.

21 MR. MADDOW: During the times when -- that
22 we're talking about, is it likely that the Delta would
23 be imbalanced during the periods of time that we're
24 talking about, the infill periods, for example?

25 DR. BROWN: Well, the whole purpose of doing

1 the month-by-month modeling is that there are no
2 general rules. And on a month-by-month basis the Delta
3 may, or may not be an imbalance. And that's exactly
4 what the model is looking for, available water for
5 diversions for periods when water would not be
6 available for diversions.

7 During the summer period that you're asking
8 about, in general, the Delta is much more controlled.
9 There's less likelihood of available water in the
10 summer.

11 MR. MADDOW: In other words, to the extent
12 that in the summer period that there is water
13 available -- Strike that.

14 That there is water which would previously
15 have been used for agricultural purposes on the
16 islands, which is now being used for that purpose
17 because the Delta Wetlands is operating those islands
18 as reservoirs, that water would remain in the Delta; is
19 that correct?

20 DR. BROWN: No. As I just mentioned, because
21 that water is now available in the Delta in many of the
22 months it is exported.

23 MR. MADDOW: Okay. Did you hear the testimony
24 of a few moments ago about the retention of water on
25 these islands throughout the non-storage periods?

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1 DR. BROWN: Am I familiar with that?

2 MR. MADDOW: Yes. Are you familiar with that?

3 DR. BROWN: In general, I'm familiar with it.

4 MR. MADDOW: And are you familiar with the
5 concept of topping off of the reservoirs to account for
6 evaporation?

7 DR. BROWN: Yes, I am.

8 MR. MADDOW: In regard to topping off, can you
9 tell us your understanding of the magnitude of those
10 topping off diversions in comparison to the previous
11 agricultural uses on the islands?

12 DR. BROWN: If there were no constraints on
13 topping off, the reservoir islands would be refilled
14 each month as water evaporated. And because the
15 evaporation from the open water is nearly the same as
16 evaporation from the crop land, if there were no
17 constraints on topping off, the reservoirs would be
18 refilling each month and water use would be very
19 similar to the this current irrigation use.

20 However, the topping off is regulated. The
21 diversions on to the storage island are under the
22 export to inflow ratio, as we described yesterday.
23 Therefore, in most of the months there is no allowable
24 topping off as I would -- as we simulated it under the
25 new water right.

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1 And so often, there is a net evaporative loss
2 from the reservoir islands that we reported for the
3 same simulation that we're sort of discussing under the
4 final operations criteria, an average of 35,000 acre
5 feet are evaporated from the reservoir islands, and are
6 not recovered with this allowable topping off.
7 So the topping off flows are much less under these
8 simulations than the initial irrigation diversions
9 would have been.

10 MR. MADDOW: And are those topping off flows,
11 those topping off diversions accounted for in your
12 modeling?

13 DR. BROWN: Yes. If you look at the
14 month-by-month table, or any of the results there are
15 these relatively small in the order of 100 csf flows
16 that occur, diversions that occur in some of the spring
17 months while the reservoirs are still seasonally
18 storing, waiting for an opportunity to export.

19 And so those allowable topping off flows under
20 the constraints for the project diversions that we've
21 described are in the model results.

22 MR. MADDOW: Dr. Brown, are you familiar with
23 the fall midwater trawl index?

24 DR. BROWN: I know basically what it is.

25 MR. MADDOW: Do you understand that it could

1 constitute a constraint on Delta Wetlands as a result
2 of the biological opinions?

3 DR. BROWN: Yes.

4 MR. MADDOW: And if that index falls below a
5 certain standard, as I understand the index number has
6 been established and is reflected in your biological
7 opinion, if the index falls below that standard doesn't
8 that result in an additional constraint on Delta
9 Wetlands's operations?

10 DR. BROWN: For the real operation of the
11 Delta Wetlands Project, if approved, that would be an
12 additional constraint as Mr. Forkel testified
13 yesterday.

14 MR. MADDOW: Have you modeled for those more
15 constrained operations as a result of the fall midwater
16 trawl index?

17 DR. BROWN: No. That is an example of a
18 constraint that occurs in real operations that simply
19 cannot be -- or at least we couldn't think of a way to
20 bring it into our monthly analysis. Remember, our
21 analysis is looking for maximum potential, or
22 significant environmental impacts and is not actually
23 trying to simulate all operational constraints.

24 MR. MADDOW: If you knew, for example,
25 Dr. Brown, that in the last 14 years in -- that have

1 MR. MADDOW: I beg your pardon.

2 HEARING OFFICER STUBCHAER: We were having a
3 little --

4 MR. MADDOW: I beg your pardon. I took time
5 out to think. So I'll give you time to talk.

6 On -- I'm referring now to your Exhibit 12 and
7 I think I'm on page 23, where you were responding to
8 question number 28. And the question is:

9 Did DEIR/EIS conclude that the Delta Wetlands
10 Project could potentially cause a significant impact in
11 salinity levels?

12 I believe your statement is that effected
13 Delta outflow is less than about 10,000 csf. And Delta
14 Wetlands's diversions of greater than 2500 csf are
15 being made, that there could be a period of time in
16 which Delta Wetlands Project may significantly affect
17 salinity.

18 Is that an approximation of your testimony?

19 DR. BROWN: Yes. I used those numbers as an
20 example.

21 MR. MADDOW: And you think that would occur
22 for about a month out of each year; is that correct?

23 DR. BROWN: Right. That's because the Delta
24 Wetlands Project never can fill completely in one month
25 of Delta --

1 MR. MADDOW: Assuming that under the
2 constraints that Mr. Forkel identified that you could
3 fill at the rate of 4,000 cubic feet per second; is
4 that correct?

5 DR. BROWN: That's right. That is the
6 diversion needed to completely fill the two reservoir
7 islands.

8 MR. MADDOW: As I understand Mr. Forkel's "Day
9 in the Life of Delta Wetlands there may be months in
10 which 4,000 would not be available. Is that your
11 understanding?

12 DR. BROWN: Yes.

13 MR. MADDOW: So it's conceivable that you
14 could be pumping above the 2500 cs -- at or above the
15 of 2500 csf you referred to on page 23 of Delta
16 Wetlands 12. And that that pumping rate could exceed
17 one month. It could, in fact, be closer to two months.

18 Is that correct?

19 DR. BROWN: Yes. If the diversions are
20 reduced, the length of pumping will be increased.

21 MR. MADDOW: The water quality perspective --
22 and thinking not just about water quality related to
23 Delta Wetlands, but thinking about Delta operations
24 more broadly, Dr. Brown, from a water quality
25 perspective would it be preferable, in your opinion,

1 for the State Board to limit Delta Wetlands's
2 diversions to periods when X2 is west of Chips Island?

3 DR. BROWN: No. I have no basis for
4 suggesting what they should do.

5 MR. MADDOW: Well, if there were senior water
6 rights holders whose right to pump was dependent upon
7 the location of X2 and Chips Island, do you think it
8 would be significant for the Board to consider
9 limitations on Delta Wetlands's ability to pump if it
10 could have an impact on the location of X2 with
11 relation to the Chipps Island?

12 DR. BROWN: That really was not my area. My
13 area was to investigate whether the operations of the
14 Delta Wetlands might have a significant affect under
15 existing water quality control plan objectives and
16 other established limits, not to suggest new types of
17 objectives or standards.

18 MR. MADDOW: Thank you. I wanted to talk to
19 Dr. Brown for just for one more moment about
20 significance criteria.

21 Dr. Brown, I was confused a little bit by your
22 significance criteria. As I understand it, your
23 significance criteria are based upon an absolute change
24 of 20 percent of a numerical standard, but the
25 increases would be limited to 90 percent of that

1 standard -- I didn't say that quite right, two parts
2 significance criteria; is that correct?

3 DR. BROWN: That's right. There were two
4 different significance criteria that were used to
5 search for significant -- possible significant impact.

6 MR. MADDOW: If the relevant numerical
7 standard for salinity is 250 at Rock Slough, for
8 example, do I understand that under your criteria for
9 significance that there could, in fact, be a 20-percent
10 swing as a result of Delta Wetlands's operations and
11 that would be insignificant?

12 DR. BROWN: That is right. That was our
13 significance criteria. 20 percent of the applicable
14 standard.

15 MR. MADDOW: Okay. So if the applicable
16 standard is 250, you're pumping; your operations could
17 result in a 50 milligrams per liter swing in chlorides
18 at Rock Slough; is that correct?

19 DR. BROWN: That's exactly right, but --

20 MR. MADDOW: Now, if the are chlorides --

21 HEARING OFFICER STUBCHAER: Mr. Maddow, he was
22 still answering.

23 MR. MADDOW: I beg your pardon. And I
24 apologize, Dr. Brown.

25 DR. BROWN: I was just saying that's exactly

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1 how the significance criteria are calculated and
2 applied on a month-to-month basis.

3 MR. MADDOW: As the entity which is
4 principally concerned about diversions at Rock Slough,
5 let me be sure I understand how this works, Dr. Brown.

6 I'd like to hypothesize an actual condition of
7 50 parts per million of chlorides at Rock Slough at a
8 period of time when the relative numerical standard is
9 250.

10 As I understand the application of your
11 significance criteria, you are asking this Board to
12 permit you to operate in a manner which would double
13 the chlorides at the Rock Slough intake and for the
14 Board to determine that that would not be significant;
15 is that correct?

16 DR. BROWN: Where did you get doubling?

17 MR. MADDOW: Well, I hypothesized that the
18 actual conditions are that the Rock Slough chloride
19 level is 50 --

20 DR. BROWN: Is 50.

21 MR. MADDOW: -- and the applicable numerical
22 standard is 250. And Delta Wetlands switches on and
23 they cause a 20 -- they go right up to the 20-percent
24 significance criterion, which you have developed for
25 them. And my client, therefore, sees the chlorides at

1 Rock Slough double -- actually, here and now run it
2 through the treatment plant the chlorides double.

3 DR. BROWN: Right. Of course, the basis for
4 both of these significance criteria is using the
5 previously established thresholds, which presumably, or
6 this is the presumption that those previously
7 established thresholds protect all beneficial uses.

8 And if the threshold is that high, 250, and
9 all beneficial uses are protected below it, then a
10 change of 20 percent within that was the significance
11 criteria agreed to by the State Board's staff.

12 MR. MADDOW: Dr. Brown, have you ever seen
13 significance criteria used before in this manner in an
14 environmental document, or a water rights proceeding?

15 DR. BROWN: Yes.

16 MR. MADDOW: Can you give me an example?

17 DR. BROWN: I guess I'm not able to come up
18 with one.

19 MR. MADDOW: Are you familiar with -- with the
20 significance criteria that were used with the
21 assistance of Jones & Stokes in the development of the
22 water rights and environmental documentation for the
23 Los Vaqueros Project?

24 DR. BROWN: Yes, I am.

25 MR. MADDOW: And can you recall what those

1 significance criteria were?

2 DR. BROWN: The one -- the starting point for
3 their analysis was that a change of five percent could
4 not be distinguished. That is, the combination of
5 measuring air and modeling airs would not allow you to
6 discriminate a five-percent change.

7 MR. MADDOW: Excuse me, Dr. Brown, just a
8 moment. Isn't it true that the five-percent change in
9 that was not from the relevant numerical standard, but
10 it was from the actual base conditions?

11 DR. BROWN: Yes, that's just a five-percent
12 change --

13 MR. MADDOW: So in my hypothetical --

14 HEARING OFFICER STUBCHAER: Mr. Maddow --

15 MR. MADDOW: I beg your pardon. I'm rushing.
16 I apologize to both the Board and to Dr. Brown in
17 particular.

18 HEARING OFFICER STUBCHAER: Go ahead,
19 Dr. Brown, you may conclude your answer.

20 DR. BROWN: Well, my difficulty is that there
21 was then not another percentage change used in the Los
22 Vaqueros, but rather a generalized assessment of
23 whether the trends were just now and then, or whether
24 there was a substantial and -- I'm losing a word, but
25 it was then at that point just almost an interpretive

1 assessment of whether the changes were consistently one
2 direction, that is increase in salinity, not a
3 percentage of the standards used.

4 MR. MADDOW: Dr. Brown, I'm not sure I follow
5 that precisely. I'd like to take you back to my
6 hypothetical. The hypothetical was that the relevant
7 numerical standard is 250. That the actual conditions
8 of the intake of Rock Slough are 50.

9 Using your significance criteria for a project
10 which would divert at rates of up to 9,000 cubic feet
11 per second, your significance criteria would allow
12 Contra Costa to experience a doubling of the chloride
13 level at Rock Slough.

14 If the significance criteria that was used by
15 this Board in acting on your permit application instead
16 used the same criterion that was used for Contra Costa
17 when its water rights were approved two years ago for a
18 200 second foot diversion, there would have been a
19 five-percent limitation, as I understand your
20 testimony.

21 Now, what would that five-percent limitation
22 have meant were it applicable to Delta Wetlands's
23 operations in terms of the water supply of my client's
24 intake?

25 DR. BROWN: I'm not testifying that a five

1 allowable range of salinity, there should be an
2 additional criteria to look for potentially significant
3 impacts. And we chose the value of the 20 percent of
4 the applicable protective threshold to create that
5 value.

6 We could, certainly, argue over what
7 percentage we should use to look for significance
8 criteria, but I think the rationale and the logic we
9 are, perhaps, agreeing on.

10 MR. MADDOW: Mr. Stubchaer, I think I'm going
11 to move on. I need to beg your indulgence for just one
12 moment, please.

13 HEARING OFFICER STUBCHAER: All right. Just
14 for your information, I silently gave you another 20
15 minutes and it thereby has expired.

16 MR. MADDOW: Thank you.

17 HEARING OFFICER STUBCHAER: And I'll give you
18 some more.

19 MR. MADDOW: I'm going to quickly turn to some
20 questions for Dr. List.

21 Dr. List, I'd like to begin with -- and I --
22 I -- any way I say this it's going to sound like I'm
23 trying to pile on. I have no intention of doing so. I
24 want to understand what you said yesterday with regard
25 to the correction which you described at the beginning

1 of your testimony. And, again, I'm not trying to be
2 piling on here.

3 Let me be sure I understand why that
4 correction was necessary. Was there an error in the
5 model? Was there an error in some data? Was it -- I'm
6 not sure I understand what happened between the
7 original version and the second version of Exhibit 14A.

8 DR. LIST: Well, I thought I was very explicit
9 about that, Mr. Maddow. The wrong date of file was
10 used as the input for the export. And it was
11 corrected. The date of file that was used for the
12 exports did not include the Delta Wetlands export. So
13 that, in fact, what happened is the initial -- the
14 results of the initial modeling showed the effect of
15 adding the Delta Wetlands water back into the Delta,
16 and not exporting it from Cliffton Court and Tracy Bank
17 from the clients.

18 The modified results, in fact, include those
19 exports. So that, in fact, what the two analyses do is
20 give you some idea of the sensitivity of the Delta to
21 the impact of the Delta Wetlands return flows. And as
22 you can see it's not very much.

23 MR. MADDOW: Now, Doctor, let's be sure that I
24 understand sort of the broad implications of that
25 change. I'm looking at page 1 of the version of Delta

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1 Wetlands's Exhibit 14A, which is dated July 2, 1997.

2 DR. LIST: That's correct.

3 MR. MADDOW: And there is a table which
4 indicates -- let's just take the Rock Slough intake.
5 The 70-year average change in parts per million of TDS
6 your original report indicated that there would be an
7 improvement of approximately 12.6 parts per million
8 over that 70-year average taken on an annual average I
9 take it?

10 DR. LIST: That's correct.

11 MR. MADDOW: And now what's happened to those
12 numbers?

13 DR. LIST: That number is now reduced to five
14 parts per million TDS in the average change. So that
15 there being approximately a two-and-a-half-percent
16 change in the improvement in the salinity at Rock
17 Slough intake.

18 MR. MADDOW: If the Board will allow me, we
19 have -- we have taken the liberty of making a slide of
20 the two versions of figure -- I believe it's called
21 Figure 10 in Dr. Brown's exhibits. And Mr. Denton is
22 putting those up on the overhead.

23 And, Dr. Brown, please, take a minute to be
24 sure that you see what we're describing. And for the
25 Reporter, what we're putting up is a overhead which

1 shows at the top Figure 10 from Delta Wetlands's
2 Exhibit 14A diversion which was dated June 3rd, 1997.

3 And on the bottom of the slide -- and,
4 Richard, perhaps, you can move it up for just a moment
5 so the Board can see it. The bottom of the slide is
6 Figure 10 from exhibit -- Delta Wetlands's 14A and it
7 is noted July 2nd, 1997. Now, Richard if you can move
8 it so that the graphs can be seen on each of them.

9 Dr. Brown, as I understand this slide looking
10 for the moment at the top version, the dots indicated
11 on the plot below the 45-degree line, I guess that's
12 45-degree line. Please, accept that for the moment.
13 Those would represent salinity improvement as a result
14 of Delta Wetlands's operation.

15 Is that correct?

16 DR. LIST: Are you addressing that to,
17 Dr. Brown?

18 MR. MADDOW: I'm sorry. I beg your pardon,
19 Dr. List.

20 DR. LIST: Yes, that's true.

21 MR. MADDOW: I -- and, again, I beg your
22 pardon? I'm moving quickly here and I've found some
23 bumps in the road a little bit, Dr. List, and I
24 appreciate your correcting me there.

25 Now, in the lower version of that graph, the

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1 corrected one it appears to me that many of those
2 benefits have disappeared. Can you tell me where they
3 went?

4 DR. LIST: I'm sorry, I can't see, because
5 Dr. Brown's head happens to be in the way.

6 MR. MADDOW: Dr. Brown, it is either my
7 misstatement, or where you're sitting. You can't
8 escape.

9 MEMBER DEL PIERO: Mr. Chairman, I'd like that
10 marked on the record.

11 MR. MADDOW: We cannot see through Mr. Brown's
12 head.

13 UNIDENTIFIED LADY: Could you repeat the
14 question, please?

15 MR. MARROW: I asked Mr. -- Dr. List what
16 happened to the benefits that appear in the upper
17 version of the Figure 10 when compared to the points
18 below the diagonal line in the lower version.

19 DR. LIST: They got crowded to the line here.
20 As you can see there is a large number of point scales
21 that are still below the line, but the spread has been
22 somewhat reduced. And this is what I would normally
23 expect to have occurred, because in the first case
24 there was a -- no diversions from the -- in other
25 words, the water which was being returned from Delta

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1 Wetlands to the Delta was passing out as increased
2 Delta outflow. And that was the error.

3 MR. MADDOW: In producing this model, or this
4 simulation, Dr. List, do you know whether the rate of
5 diversion for Delta Wetlands was 4,000 cubic feet per
6 second?

7 DR. LIST: In these particular simulations
8 here, the rate of diversion was established based on
9 the flows specified by -- by DeltaSOS. And they're
10 listed here in table -- wherever they were, table --

11 MR. MADDOW: Let's leave that for the moment,
12 Dr. List, in the interest of time, because I want to
13 press on with respect to the Chair's concerns about
14 time.

15 I'd like to ask you a question about salinity.
16 Is the salinity work which you have done -- in the
17 salinity work that you have done, have you calculated
18 any effects of concentration of salinity by virtue of
19 the water sitting in these islands for as long as 24
20 months?

21 DR. LIST: Yes, that was taken into account.
22 The evaporation from the surface of the reservoir was
23 included so that there was an increase in
24 concentration. The total mass of salt that went onto
25 the islands was compared with the total mass of salt

1 that was taken back off of the island as a check.

2 And if I might respond to your question by
3 putting a slide up, this slide shows the cumulative sum
4 of the salt that went onto the islands. And the
5 cumulative sum of the that came off of the islands.
6 And it was compared as a part of the checking when this
7 error was discovered.

8 MR. MADDOW: Dr. List, let's talk about timing
9 just a little bit.

10 MS. LEIDIGH: Could we just identify this?

11 MR. MADDOW: I beg your pardon.

12 MS. LEIDIGH: Is this anywhere in the record
13 already?

14 DR. LIST: No, it's not anywhere in the
15 record. It was prepared as part of my support work.
16 As I mentioned at the outset here, I did an extensive
17 checking of all of this material in preparation for
18 coming here. And many of these preparations involved
19 checking the water balance and salt balances, so I can
20 enter this in at this time.

21 MS. LEIDIGH: I'd like to give this the next
22 in order number for Delta Wetlands.

23 MS. BRENNER: You have DW 33.

24 MS. LEIDIGH: I understand it will be Delta
25 Wetlands's 33.

1 DR. LIST: What it shows here is the total
2 sum -- it's a product of the flows onto the island and
3 off of the island multiplied by the concentration of
4 the salt that came on, went on, and came off.

5 And here is the cumulative sum. There's a
6 slight difference of less than one percent for the
7 whole 70-year period, which is not unusual in similar
8 models.

9 MR. MADDOW: Mr. Stubchaer, we haven't seen
10 this before. I'd kind of like to get a copy of it and,
11 perhaps, reserve the right to at some point raise a
12 question about it. I, certainly, don't intend to hold
13 up Dr. List in his schedule, but this is just something
14 that --

15 HEARING OFFICER STUBCHAER: Mr. Maddow, I
16 would envision this being introduced in redirect as one
17 way of getting it into the record, but you've
18 identified it.

19 But Ms. Leidigh.

20 MS. LEIDIGH: I believe Mr. Maddow could
21 address this on rebuttal, if he wanted to.

22 MR. MADDOW: Thank you. Let's see -- if I can
23 have just a moment, Dr. List.

24 MS. BRENNER: Mr. Stubchaer, could I have a
25 moment to speak to my expert?

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1 HEARING OFFICER STUBCHAER: Yes.

2 MR. NOMELLINI: Mr. Stubchaer, in reference
3 to Dr. List, I have a question of Dr. List now and I'm
4 next in order, I think, on the list that is before you.

5 HEARING OFFICER STUBCHAER: You want to follow
6 Mr. Jackson?

7 MR. NOMELLINI: Correct.

8 HEARING OFFICER STUBCHAER: You probably want
9 to proceed him.

10 MR. NOMELLINI: That's all right. I would be
11 happy to follow. I do have a question of Dr. List.

12 HEARING OFFICER STUBCHAER: Why don't you
13 negotiate with Mr. Jackson and I'll accept your
14 conclusion as to order.

15 MR. MADDOW: Is that off the record, too?

16 HEARING OFFICER STUBCHAER: No.

17 MR. MADDOW: Okay. Just one more brief
18 moment, Dr. List. I was going to ask you a question
19 about pages -- I guess it's 3 and 4 of your Exhibit 14.

20 DR. LIST: While you're looking for your
21 question, Mr. Maddow, the table I was looking for
22 before is C1, which is the Delta Wetlands's operations
23 schedule that was included as part of the model.

24 MR. MADDOW: Table C1 in which exhibit,
25 Dr. List?

1 DR. LIST: In Exhibit 14 -- DW 14.

2 MR. MADDOW: Delta Wetlands 14. Thank you.

3 MS. BRENNER: Could you ask him what the
4 conclusion was?

5 DR. LIST: The conclusion is that the rate was
6 set by in whatever the cubic feet per second is listed
7 in that table. So that the flow rates are not 4,000
8 cubic feet per second, they're whatever is listed in
9 that table is.

10 MR. MADDOW: They are whatever is listed in
11 that table, which is the product of whatever you had
12 determined was the relevant set of constraints at the
13 time the model -- or that Dr. Brown was constructing
14 the model; is that correct?

15 DR. LIST: That is the table that was provided
16 to us by Jones & Stokes.

17 MR. MADDOW: Yes.

18 DR. LIST: So the division involved here are
19 what were included in our simulation about the
20 salinity.

21 MR. MADDOW: You didn't do that
22 independently --

23 DR. LIST: No.

24 MR. MADDOW: -- you just took the product of
25 their work? I understand.

1 Dr. List, I was going to ask you to turn to
2 page 3 of your Delta Wetlands's 14A. And I just
3 realized that I picked up the original version in this
4 rather than the new one.

5 Directing your attention to the bottom of page
6 three, the sentence which appears five lines above the
7 bottom of the page. I'll read it very briefly:

8 However, when these islands act as reservoirs
9 they store excess water pump from the Delta during the
10 high -- during the winter high flow months and do not
11 divert water during the summer aside, from small scale
12 summer flows to top off the reservoirs. Thus, the
13 evaporative losses shift from summer irrigation water
14 to stored winter water and the net Delta outflow is
15 increased during the summer low flow months.

16 (Reading.)

17 Are you familiar with that?

18 DR. LIST: Yeah, I can see that sentence.

19 MR. MADDOW: What is the magnitude of those
20 small scale summer flows to top off the reservoirs,
21 Dr. List?

22 DR. LIST: They're in Table C1. They're
23 included, I believe, as part of Table C1.

24 MR. MADDOW: And how does that data compare to
25 the existing agricultural diversions?

1 DR. LIST: I'm -- I can't tell you. I don't
2 know off the top of my head what the existing
3 agricultural diversions are except that they are
4 substantially more significant than these, I believe.
5 These are 65 cubic feet per second, that order of
6 magnitude --

7 MR. MADDOW: And --

8 DR. LIST: -- for occasional month like -- for
9 example, if we look at Table C1, on the first page of
10 Table C1 --

11 MR. MADDOW: Yes.

12 DR. LIST: -- you'll see numbers -- small
13 numbers here like: July, 25 cubic feet per second in
14 July of 1925; July of 1926, 64 cubic feet per second;
15 July -- March -- July of 1928, 65 cubic feet per
16 second. That represents the top off flow.

17 MR. MADDOW: And you have no idea what the
18 magnitude is of the existing agricultural diversions?

19 DR. LIST: Oh, I do, but I can't bring the
20 number to mind at the moment.

21 MR. MADDOW: Supposing for the moment that
22 those numbers were essentially the same --

23 DR. LIST: Well, it's 65 -- you mean 65 --

24 MR. MADDOW: Existing agricultural
25 diversions --

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1 DR. LIST: 65 cubic feet per second for
2 diversions for July and none for the rest of the
3 summer?

4 MR. MADDOW: No.

5 HEARING OFFICER STUBCHAER: Excuse me,
6 Mr. Maddow, in cross-examination of the panel you can
7 ask them, and any other member of the panel can
8 volunteer if they know the number what the ag
9 diversions are in the summertime.

10 MR. MADDOW: Mr. Forkel, do you know the
11 magnitude of the diversions in the summertime?

12 MR. FORKEL: I don't know them exactly.

13 MR. MADDOW: Does any other member of the
14 panel know that number? Since -- since we're not
15 getting the number and in the interest of time, let me
16 ask the question in the hypothetical.

17 Dr. List, if we assume for the moment that the
18 existing agricultural diversions are essentially the
19 same as those diversions for topping off flows, what
20 does that mean with regard to the water supply benefit
21 for the reduced agricultural diversions?

22 DR. LIST: Mr. Maddow, if they were the same
23 they would be 65 cubic feet per second in July and most
24 of the months May, June, August, and September. And I
25 can't believe that the agricultural work for that

1 period of time with no water. So I can't make that
2 comparison.

3 MR. MADDOW: Just a moment, Dr. List.
4 Dr. List, in Exhibit Delta Wetlands's 14 on page 5 in
5 your response to -- and this is 14 not 14A, your
6 response to, I believe it's question 17, you have
7 indicated that water return from the reservoir --
8 reservoir islands was on occasion observed to be higher
9 in salinity than the channel receiving water.

10 Dr. List, can you tell us what percentage of
11 the time that returned water was saltier than the
12 channel receiving water?

13 DR. LIST: No, I can't tell you exactly what
14 the percentage of the time was.

15 MR. MADDOW: Would you estimate that it would
16 be more than 70 percent?

17 DR. LIST: No. I said that I can't make any
18 estimate, because I haven't done the statistics of when
19 that would occur. But I notice that it was observed on
20 occasion to be higher and -- but usually that occurred
21 during times when the overall salinity was low.

22 MR. MADDOW: Usually occurred at the time when
23 the overall salinity was low. Let me be sure that I
24 understand that, Dr. List.

25 DR. LIST: Well, perhaps --

1 MR. MADDOW: The discharges -- in what months
2 would you anticipate that the Delta Wetlands water
3 would be discharged from reservoir islands?

4 DR. LIST: Well, perhaps, I can refer to an
5 exhibit here that will clarify the --

6 MR. MADDOW: I'm not attempting to be
7 argumentative, Mr. Stubchaer, but simply in the
8 interest of time I'd just like him to answer the
9 question.

10 In what months would you estimate that the
11 water would be returned from the reservoir islands into
12 the Delta channels?

13 HEARING OFFICER STUBCHAER: He's looking up an
14 exhibit to try and answer your question.

15 DR. LIST: I'm trying to answer your question
16 by responding -- well, for the sake of argument here is
17 an exhibit for the 1920s. And I have another one
18 here --

19 MR. NOMELLINI: And would you identify the
20 exhibit that you just had placed on the overhead?

21 MEMBER BROWN: Figure 20.

22 DR. LIST: Figure 20.

23 MS. LEIDIGH: Figure 20 from what document?

24 DR. LIST: Figure 20 from DW 14. And what
25 this shows is it identifies the times of the year when

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1 diversions have occurred and returns have occurred,
2 which have been significant diversions as significant
3 returns.

4 As you see on this particular case here, the
5 brown line refers to no-project. And the blue line
6 refers to with the Delta Wetlands. And you see that
7 the net effect of the return here of the diversion is
8 to increase the salinity.

9 And the net effect of the return here at this
10 particular occasion was to decrease the salinity, an
11 arrest -- Russ, I'd ask you to move your head, because
12 I don't want to zap you with the laser.

13 MR. MADDOW: You're taking much advantage of
14 Dr. Brown here this morning.

15 DR. LIST: In this particular occasion here
16 when the return occurred, the net effect was to
17 actually improve the quality of the water. You see
18 that the effect of the diversion here was to decrease
19 the quality of the water.

20 And if I could put up the subsequent one, the
21 one from the '70s. This is Figure 25, I believe. And
22 this shows the daily salinity at Holland Track when the
23 diversions -- when diversions occurred and when returns
24 occurred. And you can see over here it's sort of
25 informative.

1 Over here you can see that there is actually
2 improvement in the quality of the water even though
3 Delta Wetlands is doing nothing. And the reason for
4 that is foregone agricultural returns result in an
5 improvement of the water quality.

6 Over in this particular month, you can see
7 there was actually a degradation in the water quality,
8 but you see the salinity was very low at that
9 particular time.

10 MR. MADDOW: Dr. List, may I ask you about the
11 foregone agricultural returns? Do you have an estimate
12 of the magnitude of those foregone agricultural
13 returns?

14 DR. LIST: I've computed them; I don't have
15 them with me.

16 MR. MADDOW: If I suggested a hypothetical
17 range of 100 to 200 feet per cubic second, would you
18 believe that that would be a close approximation of the
19 numbers that you computed?

20 DR. LIST: The best number that I can give you
21 that is at peak, it amounts to approximately two
22 percent of net Delta outflow in July and August.

23 MR. MADDOW: And is it your assumption that
24 this agricultural return water is, in fact, available
25 for additional summer outflow?

1 DR. LIST: I'm sorry, I don't understand your
2 question.

3 MR. MADDOW: Is it your assumption that that
4 agricultural return water can treat -- the
5 agricultural -- wait, how do I want to say this?

6 What becomes of the foregone agricultural
7 return flow? In other words, this is water that would
8 not be pumped on the islands. And, therefore, would
9 not end up as agricultural return flow ultimately?
10 That's what I'm trying to get to, Dr. List.

11 Is that a fair statement?

12 DR. LIST: That's correct.

13 MR. MADDOW: Okay. And if that's in the --
14 order of magnitude that you described, what happens to
15 that water, that water which is not going to be pumped
16 on; it's not going to come back as agricultural return
17 flow. Where is it in the models that you have
18 produced?

19 DR. LIST: In the models that we've done it
20 goes out in the San Francisco Bay.

21 MR. MADDOW: And does that include in all
22 conditions? For example, when the Delta is in balance?

23 DR. LIST: The foregone agricultural
24 diversions in this particular -- well, let me back up.
25 This is a comparative model. What it does is it

1 compares the operation of the system with no Delta
2 Wetlands, 70 years of operations of the Delta with no
3 Delta Wetlands with -- under a certain operating
4 assumption, the operation of the Delta with the Delta
5 Wetlands present.

6 When the Delta Wetlands are present there is
7 no agricultural diversion. So that the improvement
8 that you can ascribe to that particular slide here --
9 see that in this particular -- this particular period
10 here, even though there's a Delta Wetlands Project,
11 there are no agricultural diversions.

12 MR. MADDOW: Dr. Brown, can you tell us what
13 it is that you are referring to in this case -- I'm
14 sorry, Dr. List.

15 Can you tell us what it is you're referring
16 to?

17 DR. LIST: Well, what we're applying is the
18 salinity here --

19 MR. MADDOW: Excuse me. Just identify the
20 exhibit. I beg your pardon?

21 DR. LIST: The previous exhibit.

22 MR. MADDOW: Which is?

23 DR. LIST: Figure 25, Delta Wetlands 14.

24 MR. MADDOW: Thank you.

25 DR. LIST: Now, as I mentioned, this was a

1 comparative model. And what it does is it compares
2 what occurs under a certain set of assumptions with
3 what would occur with and without Delta Wetlands. So
4 that when Delta Wetlands is present, as represented by
5 the blue line here, there cannot be any agricultural
6 diversions.

7 So even though Delta Wetlands is not doing
8 anything, there is actually an improvement in the water
9 quality because there is no agricultural diversion in
10 the model.

11 MR. MADDOW: And just -- I'm trying to get to
12 a point that is slightly different I believe, Dr. List,
13 and I apologize I'm taking so long to get there.

14 To the extent that there are agricultural
15 diversions and the result of agricultural return flow
16 will not be occurring, I want to know where that water
17 goes in your model. Does it end up as net Delta
18 outflow?

19 DR. LIST: It's not added to exports, if
20 that's what you mean.

21 MR. MADDOW: It's not added to exports.
22 Therefore, it is net Delta outflow, correct? It goes
23 into San Francisco Bay. Is what you said a few moments
24 ago?

25 DR. LIST: That's correct.

1 MR. MADDOW: Is that realistic when the Delta
2 is in balance condition?

3 DR. LIST: I don't know that the Delta is ever
4 in balance. This is a dynamic system. And it has to
5 be considered as a research from what Contra Costa
6 Water District has shown, that it's impossible to make
7 a relationship between flow and salinity without
8 considering what's gone on in the previous few months,
9 because the system is very complex and the time scale
10 involved in the Delta is of the order of 90 to 120
11 days.

12 So when you make a change in the Delta, you
13 don't necessarily see anything occur, where it takes it
14 really 90 days to work it through the system. So you
15 can't really say that the water is foregone from the
16 agricultural return is necessarily immediately going to
17 appear out in San Francisco.

18 MR. MADDOW: But it's not export. Your model
19 doesn't know it being exported --

20 DR. LIST: It's not --

21 MR. MADDOW: -- it shows it going into San
22 Francisco Bay.

23 DR. LIST: In this particular -- let me
24 explain the way these two comparative models is done.
25 One of them is, you set up the entire system of the

1 hydrology of the Delta that has some agricultural
2 diversions and agricultural returns.

3 When the system is working as the -- the net
4 Delta is working with Delta Wetlands present, then
5 there are no agricultural returns -- no agricultural
6 diversions, and no agricultural returns. So that to
7 the extent that the inflows to the Delta are the same
8 from the east side stream, Vernalis --

9 MR. MADDOW: From the stored water?

10 DR. LIST: From the stored water from the
11 Sacramento River, then that water will appear as
12 additional net Delta outflow.

13 MR. MADDOW: Isn't it likely, Dr. List, that
14 when that water appears that there will be a reduction
15 in the release of stored water from upstream, or it
16 could --

17 DR. LIST: I can't really respond to that,
18 because I'm not --

19 MR. MADDOW: You're not familiar with the
20 Vernalis conditions?

21 DR. LIST: I'm not cognizant with the
22 decisions that are made by operations, people on the
23 river.

24 MS. BRENNER: Mr. Stubchaer, with that I will
25 stop. I would beg the Board's indulgence. If

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1 possible, I would like to have the opportunity to
2 cross-examine Dr. Kavanaugh for not more than five
3 minutes.

4 I've taken a great deal of the Board's time
5 and of these witnesses' times and in particular with
6 deference to Dr. List, who has a short time. I think
7 it would be preferable if I sat down, having a little
8 more time to prepare, I'll do a little more efficient
9 job. Thank you.

10 And Dr. List and Dr. Brown, I apologize for
11 bumping over your names so many times.

12 HEARING OFFICER STUBCHAER: Mr. Maddow, you
13 had a hour net, which is -- which is fine. I think you
14 were pursuing an excellent line of questions. And we
15 appreciate your timeliness now.

16 MR. MADDOW: Thank you.

17 HEARING OFFICER STUBCHAER: And with that
18 we're going to take a 12-minute break.

19 (Recess taken from 10:35 a.m. to 10:47 a.m.)

20 HEARING OFFICER STUBCHAER: Okay. We'll come
21 back to order. Mr. Nomellini, what did you and Mr.
22 Jackson -- oh, here you are.

23 MR. NOME LLINI: We made a deal.

24 HEARING OFFICER STUBCHAER: I thought you were
25 back there. What did you promise to do, no more than

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1 ten minutes?

2 MR. NOME LLINI: Well, the agreement is I would
3 lead with the questions and then I would sit down and
4 he would then take over and then I come back up.

5 My name is Dante Nomellini, D-A-N-T-E,
6 N-O-M-E-L-L-I-N-I.

7 HEARING OFFICER STUBCHAER: All right.

8 MEMBER DEL PIERO: Cross-examination.

9 ---oOo---

10 CROSS-EXAMINATION OF DELTA WETLANDS PROPERTIES

11 BY CENTRAL DELTA WATER AGENCY

12 BY DANTE NOME LLINI

13 MR. NOME LLINI: Okay. Now, that Mr. Maddow
14 has softened the Chair of the Hearing Officer I can
15 see -- with regard to water quality impacts of the
16 Delta Wetlands Project, assuming that somebody told me
17 that the Delta Wetlands Project was going to improve
18 water quality in the interior of the Delta, is that a
19 true statement, Dr. List?

20 DR. LIST: I believe that to be true. This on
21 a comparative analysis. You must remember that what
22 the Delta Wetlands Project does is try to take salt out
23 of the system, or put salt back into the system, add
24 salt to the system. The total amount of salt remains
25 exactly the same just as it did when there were farms.

1 There were agricultural diversions and the salt
2 returned. So nothing basically changed with respect to
3 the total amount of salt that goes into the Delta.

4 What does change is the time of the year that
5 it's added and subtracted. And, in my opinion, the
6 changes are going to result in a net improvement in the
7 water quality, because what happens is it's degraded
8 when the water quality is good, and it's improved when
9 the water quality is bad.

10 MR. NOMELLINI: All right. So the key to that
11 answer is -- is the net effect of the project?

12 DR. LIST: The net effect of the project is to
13 degrade the water when it's good, and improve it when
14 it's bad. So the overall -- if you're somebody who
15 likes good water, then my conclusion is that the net
16 effect of the project is overall positive; small but
17 positive.

18 MR. NOMELLINI: All right. Now, if we took
19 the figure -- I think it was Figure 10, maybe somebody
20 can put it on the screen.

21 If we -- as I understand it, the dots above
22 the line are instances where water quality is degraded;
23 is that correct?

24 DR. LIST: That's correct, with respect to
25 salinity; total dissolved solids.

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1 MR. NOMESELLINI: Okay. Now, if we had a
2 parameter condition on the permit that said that the
3 Delta Wetlands Project operation could not degrade
4 water quality in the interior of the Delta, and I'm not
5 talking about the outflow, but the interior of the
6 Delta, would we eliminate those dots above the line?

7 DR. LIST: You can't do that, because it's
8 extremely complex and because each one of those dots
9 above the line represents a withdrawal that occurred at
10 sometime in anticipation of the ability to pass it out
11 at some future time.

12 So that it's -- to use the jargon, the process
13 is serially correlated. In other words, what happens
14 at one month is -- or one year is very dependent on
15 what's gone on in the previous year. So you can't make
16 an arbitrary judgment of simply taking those dots off
17 of there without consideration of where they were in
18 the context of the entire operation.

19 MR. NOMESELLINI: Okay. So these dots --

20 DR. LIST: You have to look --

21 MR. NOMESELLINI: -- are the result -- excuse
22 me.

23 DR. LIST: Yeah. You have to look at the
24 project in an overall sense. And the overall sense is
25 that there is some degradation and some improvement.

1 As I said before, the total amount of salt remains
2 exactly the same. So what you're doing is moving the
3 salt from one time of the year to the next. And as a
4 consequence, you can't do that without having some
5 improvement, without at the same time having some
6 degradation.

7 So you can have an overall improvement. To
8 have an overall improvement all the time would require
9 removing salt from the Delta, which I don't think
10 anybody has thought about doing. If you can convince
11 Cargo to come build a salt pond in the middle of the
12 Delta then, perhaps, that could be done. But short of
13 trucking salt out of the Delta, there's no way that you
14 can have improvements without having degradation during
15 some of the time.

16 MR. NOMELLINI: All right. Can we have
17 improvement during the summer months?

18 DR. LIST: There are improvements that occur
19 during summer months.

20 MR. NOMELLINI: Can we eliminate degradation
21 during summer months?

22 DR. LIST: Well, I'd have to go back into the
23 operations and look at the overall system, but this
24 graph doesn't enable me to identify which are the
25 winter months and which are the summer months. But you

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1 can do that on some of the other figures that I've got
2 here.

3 The one I had up previously, Figure 25,
4 enables you to see whether there are improvements or
5 degradation during summer months. If I put this Figure
6 25 back up, again, maybe I can use that as an
7 explanation.

8 You see that there's -- I've chosen this
9 particular year, because there's a very wet year in '78
10 and the two prior years are kind of dryer years which
11 show high salinity at Holland Track.

12 And you see the net effect of the project at
13 this particular time which they actually show a modest
14 improvement; small, but modest improvement at that
15 particular time, which happened to be in the late
16 summer of the 1978.

17 MR. NOMELLINI: So -- so if we had a condition
18 imposed on this project --

19 DR. LIST: '77, sorry.

20 MR. NOMELLINI: So if we had a condition
21 imposed on this project that it could not degrade water
22 quality during the summer months, this graph would show
23 us that it would not have an adverse impact on the
24 project during this period of time?

25 DR. LIST: At that particular time; but if you

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1 go and look at some other time, for example, over
2 here -- in fact in late 1975 it would be actually in
3 the summer months, there it did actually cause a
4 degradation.

5 But, you see, it caused a degradation at a
6 time when the water quality was really very good
7 relative to what it is at other times in the Delta. So
8 that, in fact, you would be passing up the opportunity
9 to -- for somebody to have -- make beneficial use of
10 that water because of your claim that you during -- are
11 causing a degradation at this point. And the
12 degradation happens to be extremely tiny. So I don't
13 think it would be a sensible thing to do.

14 MR. NOMELLINI: Many of us who view Delta
15 water quality view as important the beneficial water
16 quality that is not limited by the standard, in that
17 the standard represents a control on the extreme. But
18 rather, for agricultural use, we look at the total
19 salts that might be applied to our field.

20 If that were the case would that change your
21 view?

22 DR. LIST: No. As I pointed out over here,
23 this point is particularly explicit, because what it
24 shows is that if you said that you could not have a
25 return at this particular time, then what you would be

1 doing is saying that you -- which is water quality
2 which is better than 65 milligrams of chloride, you
3 would be denying somebody the beneficial use of that
4 water.

5 HEARING OFFICER STUBCHAER: Pardon me. Just
6 for the record, you're pointing at 75 and a half to 76.

7 DR. LIST: Yeah, that Delta Wetlands Exhibit
8 14, Figure 25.

9 HEARING OFFICER STUBCHAER: Okay.

10 MR. NOMESELLINI: Rather than debate the
11 philosophical approach to use for water, let's go back
12 to that Figure 10 if we can. And I have one last
13 question.

14 As I understand this graph, the dots below the
15 line on the right-half portion are benefits derived
16 from an assumption that the water not used for
17 agricultural purposes would flow out as outflow --

18 DR. LIST: That would be --

19 MR. NOMESELLINI: -- is that correct?

20 DR. LIST: Partially correct in the sense
21 that, yes, that is a contributor to that, but there are
22 other factors that are involved also. And it's
23 impossible to ascribe the benefits there entirely to
24 the fact that it was 200 cubic feet per second, or a
25 hundred cubic feet per second with the agricultural

1 returns going out of the Delta.

2 It may have been simply the manner in which
3 the return flows were put into the Delta in respect to
4 what had gone on in the previous few months. As you
5 can see, I keep coming back to this Figure 25, again --

6 MR. NOMESELLINI: Let's stay on this one a
7 minute if we can, and then we'll go back to your 25 if
8 that's permissible.

9 DR. LIST: Sure.

10 MR. NOMESELLINI: Let's assume that some of
11 these dots are related to outflow.

12 DR. LIST: You can't really associate the dot
13 without following --

14 MR. NOMESELLINI: The benefit is related --

15 DR. LIST: -- to say partially that part of
16 the benefit may well be related to outflow, but not
17 entirely. You can't ascribe an entire --

18 MR. NOMESELLINI: Let's say right on the
19 assumption that there's some attributed benefit to the
20 dot below the line related to increased outflow.

21 DR. LIST: I can accept that.

22 MR. NOMESELLINI: All right. If we did this
23 model again, re-operated it with the Department of
24 Water Resources and State Water Project and the Bureau
25 of re-operating so that they could fully utilize their

1 water right, is it possible that outflow, that
2 component that would have been outflow, would not
3 actually result in outflow but would be export?

4 DR. LIST: No. You'd have to rephrase that,
5 again. I'm sorry, I was thinking ahead and I wasn't
6 paying attention to your question.

7 MR. NOMELLINI: All right. With regard to the
8 portion of the benefit attributed to these dots below
9 the line that is related to an increase outflow --

10 DR. LIST: Yes.

11 MR. NOMELLINI: -- would a re-operation of
12 the model, without the consumptive use on the four
13 Delta Wetland islands, show that the Bureau, or the
14 State could utilize that water under their existing
15 water rights and it would result in outflow, but rather
16 an additional export, or retention, or storage?

17 DR. LIST: I believe that would be the case,
18 because the system is relatively insensitive. If I can
19 go back to the Figure 10, which is one above here.

20 You notice in the one above, the benefits up
21 here are not really that much different from the
22 benefits down here, despite the fact that all of the
23 diversions, all of the returns from the Delta Wetlands
24 Project are, in fact, passing out in the San Francisco
25 Bay.

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1 HEARING OFFICER STUBCHAER: Dr. List, would
2 you please keep in mind that when we read the written
3 transcript up here and down here --

4 DR. LIST: Ah, yes.

5 HEARING OFFICER STUBCHAER: -- are not clear.

6 DR. LIST: Yes. This is a figure which --
7 which Contra Costa Water District introduced. And it
8 has Figure 10 from June the 3rd, second Figure 10 --
9 the corrected Figure 10 I'm referring -- they make a
10 nice comparison, because the figure on the -- in
11 June 2nd of the upper figure, includes all of the
12 return flows to the Delta are passing out of San
13 Francisco Bay the same as the agricultural returns.

14 The lower figure has the returns being
15 exported from the pumps. And you see this really --
16 there's really not a significant change in the -- well,
17 what it's telling me is that these particular benefits
18 here; they're probably associated with the salinity
19 changes with respect to agricultural rather than net
20 Delta outflow.

21 MR. NOMELLINI: If we wanted a correct
22 representation, or more correct representation of the
23 benefit and detriment of the project, the Delta
24 Wetlands Project wouldn't we have to re-operate this
25 model with the actual, or close to the actual operating

1 plan of the State Water Project and the Central Valley
2 Project?

3 DR. LIST: That's presuming that this has
4 been -- this water which is in effect passed up by the
5 Delta Wetlands is actually taken up by somebody else.
6 And at this point I'm not in the position to make that
7 judgment that that water which is returned is
8 necessarily going to be grabbed by somebody else.

9 In any case, the 65 of cubic feet per second,
10 or 100 cubic feet per second that are involved is
11 probably hardly within the accuracy of any of the flow
12 measurements that are made around the Delta, and
13 probably in the error associated with this particular
14 model.

15 MR. NOMELLINI: All right. Last question --
16 were you finished with that answer?

17 DR. LIST: Yes, I was.

18 MR. NOMELLINI: Okay. Thank you. What would
19 we have to do to determine the impact on the Delta
20 Wetlands Project by a condition that said you could not
21 degrade summer water quality?

22 DR. LIST: That would have to go back into the
23 operation plan. It wouldn't be part of this particular
24 simulation. It would be extremely complex. It would
25 have to be a narrative modeling in which you went round

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1 and round and tried something a bit, because you can't
2 make a prediction as to what the salinities are going
3 to be, because of the fact that -- as it is, these
4 particular models are a narrative model. What we do is
5 run the model once to determine what the salinities
6 are, and then run it again to take that salinity out
7 and divert it, put it back into the Delta.

8 So it could be complicated. It could possibly
9 be done, but as I pointed out before, I think it would
10 be not really very productive. Because, as I said, you
11 can't have -- if you take the overall picture and the
12 total amount of salt remains the same, you can't have
13 improved water quality without degrading it at some
14 other particular time.

15 And the best time to degrade it is when the
16 water quality is best. And it seems to me the trade
17 off between getting improved quality here and poor
18 quality here is a pretty good trade off to me.

19 MR. NOMELLINI: Is it your sense that it would
20 make a major detrimental impact, or cause a major
21 detrimental impact on the Delta Wetlands Project to
22 have such a condition, or would it be minor in nature?

23 DR. LIST: I'm not competent to respond to
24 that question.

25 MR. NOMELLINI: Okay. That's all I have.

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1 Thank you.

2 HEARING OFFICER STUBCHAER: Thank you,
3 Mr. Nomellini.

4 Mr. Jackson.

5 ---oOo---

6 CROSS-EXAMINATION OF DELTA WETLANDS PROPERTIES

7 BY CALSPA, COMMISSION TO SAVE MOKELUMNE

8 BY MICHAEL JACKSON

9 MR. JACKSON: Mr. List, you indicated -- I
10 think you said, that the salt balance in the Delta is
11 constant. Is that right?

12 DR. LIST: No. As I said on the overall
13 picture of these models, the total amount of salt that
14 goes into the Delta and goes out of the Delta remains
15 effectively constant on the long-term.

16 Now, what happens is the X2 position moves in
17 and out from year-to-year, but the total amount of salt
18 that comes down the San Joaquin, comes down the
19 Sacramento River, and from the east side stream ends up
20 passing out of the Delta either through the export
21 pumps through Contra Costa, or out through San
22 Francisco Bay.

23 MR. JACKSON: So what you're saying is the
24 molecules of salt are constant, but if Delta outflow,
25 for instance, reduces, doesn't salinity increase?

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1 DR. LIST: Delta outflow reduces then the --
2 the net effect is the Bay salinity migrates further
3 into the Delta, but the salt balances remains constant.
4 As much salt that goes into the Delta goes into the
5 Delta. And you just established a new balance point
6 with it.

7 The X2 moves up and down depending upon what
8 the -- what the flow rates are. And it's in a dynamic
9 state, and very wet years maybe out at San Francisco
10 Bay and very dry years that may move out past Rio
11 Vista. So this is a dynamic situation.

12 MR. JACKSON: And I believe that -- I mean
13 wouldn't it be true that if Delta Wetlands reduces
14 long-term outflow, then long-term salinity would
15 increase?

16 DR. LIST: Long-term -- well, the position --
17 the average position of the X2 over a 200-year period
18 may move into the Delta by a few 100 meters.

19 MR. JACKSON: Didn't you hear the testimony
20 that X2 could be changed by this project by 1.7
21 kilometers?

22 DR. LIST: In -- I don't -- I don't accept
23 that.

24 MR. JACKSON: So in your expert opinion, the
25 testimony that X2 could be changed by 1.7 kilometers is

1 erroneous?

2 DR. LIST: If you recall looking at the graph
3 that was put up to make these X2 calculations, it
4 looked like somebody had fired a shotgun at it. So
5 that anything that was -- any deductions that you made
6 from that peer have got to include a substantial error
7 margin. And I think the error margin from where the X2
8 is located is probably -- probably greatly exceeds one
9 and a half kilometers.

10 MR. FORKEL: Mr. Jackson, can I add
11 something?

12 MR. JACKSON: Yes, sir.

13 MR. FORKEL: Yeah, that was my testimony that
14 said there was a shift of 1.7. That was one specific
15 example during a 30-day period. It wasn't looking at
16 the long-term shift effects, too. It was one specific
17 example.

18 MR. JACKSON: And it could be 1.7 kilometer
19 long-term, or less, right?

20 MR. FORKEL: That would be one specific
21 example. And the X2 would quickly recede back after we
22 stopped making diversion to the -- without project
23 condition.

24 MR. JACKSON: How did you determine then that
25 X2 -- you would -- you would quit diverting if X2 moved

1 2.5 kilometers if this -- this is sort of a -- sort of
2 a daily occurrence individual example. How did you
3 pick the criterion of the 2.5 kilometers?

4 MR. FORKEL: We didn't pick the criteria of
5 2.5.

6 MR. JACKSON: Who did?

7 MR. FORKEL: The Federal Fishery Agencies and
8 the biological.

9 MR. JACKSON: So in your opinion that is --
10 well, Dr. List, is the 1.7 or the 2. -- is the 2.5
11 anymore exact than the 1.7 you just testified to?

12 DR. LIST: No, I don't believe so. I think
13 that it's going to be extremely difficult to locate
14 where the X2. I've been out on the Delta. I have
15 measured salinities. I've been up and down it and if
16 anybody tell us me they know exactly where X2 is, I
17 don't believe it.

18 MR. JACKSON: Okay. Now, this is for
19 Dr. Brown.

20 Dr. Brown, in your testimony you stated that
21 you modeled the water quality and salinity using
22 monthly data; some of which was data collected, actual
23 data and some from modeling simulations. Is that
24 right?

25 DR. BROWN: That's right. We're working on a

1 monthly water quality analysis and we're using the
2 combination of available field measurements as well as
3 the model results.

4 MR. JACKSON: Wouldn't choosing monthly data
5 rather than daily, or hourly data mask daily and hourly
6 effects that might be substantial?

7 DR. BROWN: No.

8 MR. JACKSON: You're indicating that the fish,
9 for instance -- let's take the -- just because I love
10 them, let's take the, oh, say, the spring-run salmon.

11 The spring-run salmon is in the Delta in fry
12 and juvenile stages. You can assume for the purposes
13 of this question, at the time that the diversions are
14 going to take place. They're going to be present in
15 the Delta at the time the releases from the islands
16 take place.

17 Are you saying that either salinity or DO, or
18 algae blooms wouldn't be happening on a daily, or
19 hourly basis that could be fatal to those fish?

20 DR. BROWN: To answer your question if I
21 understood it properly --

22 MS. BRENNER: Can I raise -- can I raise an
23 objection? If I could, he's got a hypo with several
24 compounds on top of that.

25 If he could just back up for a second and

1 just do one at a time, perhaps, then each of the
2 experts that is qualified to address the particular
3 issue could address it.

4 HEARING OFFICER STUBCHAER: Will you rephrase
5 your question?

6 MR. JACKSON: Certainly.

7 HEARING OFFICER STUBCHAER: And also do you
8 want to concentrate your questions on Dr. List and do
9 the other part later.

10 MR. JACKSON: You just want me to do Dr. List
11 and then sit down?

12 MS. BRENNER: Yes.

13 HEARING OFFICER STUBCHAER: Yes.

14 MR. JACKSON: Is that what you have in mind?

15 HEARING OFFICER STUBCHAER: Yes.

16 MS. BRENNER: Yes.

17 MR. JACKSON: All right. Just a moment.

18 HEARING OFFICER STUBCHAER: Mr. Jackson, I
19 asked you to concentrate, I didn't say limit. There's
20 some concern up here that we're restricting you too
21 much in your line of questioning.

22 MR. JACKSON: Well, I -- I -- as I understand
23 it now, I am to ask Dr. List questions, then sit down.

24 HEARING OFFICER STUBCHAER: You can ask
25 Dr. List questions, but if it's necessary to get a

1 complete answer from him, you can, of course, address
2 it to others.

3 MR. JACKSON: All right.

4 HEARING OFFICER STUBCHAER: The object of all
5 of this is to accommodate his schedule, but we still
6 want a complete and accurate record.

7 MR. JACKSON: Yes, sir. So I will have
8 another opportunity when I'm through with Dr. List for
9 the rest of these folks?

10 HEARING OFFICER STUBCHAER: Yes.

11 MR. JACKSON: All right. Dr. List, you
12 indicate that in your testimony on page 12 that the
13 Delta Wetlands reservoir islands store water for
14 several months exposing it to prolonged evaporation.
15 And that there's a potential that the evaporative
16 losses will concentrate the salinity of the stored
17 water.

18 How does that process take place?

19 DR. LIST: How does evaporation take place?

20 MR. JACKSON: How does -- how does -- how does
21 the concentration take place?

22 DR. LIST: Well, there's a certain amount of
23 salt in the water. And if you -- evaporation takes
24 water molecules out of service and leaves the salt
25 behind. So the concentration has to -- so the salt

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1 must increase. The total amount of salt remains the
2 same, but the concentration goes up.

3 MR. JACKSON: Now, does that concentration of
4 salt add salt to the soils?

5 DR. LIST: Now, I'm -- I'm not that competent
6 to make judgments about that. I don't believe that
7 would be the case, no.

8 MR. JACKSON: So there -- as far you're -- as
9 far as you understand this repetitive filling and
10 evaporation does not cause salts to build up in the
11 soils in the reservoir islands?

12 DR. LIST: I think there are other experts
13 here who can address that question.

14 MR. JACKSON: All right. Did you make any
15 determination of whether or not there would be days, or
16 hours at the time of release in which the -- in which
17 salinity increases would be present at, for instance,
18 Rock Slough over the 20-percent exceedance rate?

19 DR. LIST: I'm afraid I don't understand your
20 question. What 20 percent exceedance rate --

21 MR. JACKSON: You indicate -- you indicate
22 that it will be significant if there's an increase in
23 salinity of 20 percent.

24 DR. LIST: No, that was Dr. Brown.

25 MR. JACKSON: All right.

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1 DR. LIST: I made no --

2 MR. JACKSON: All right. Dr. Brown, will
3 there be days and hours in which that 20 percent --
4 that 20-percent number will be exceeded in the course
5 of operation at Rock Slough?

6 DR. BROWN: If the 20 percent is attached to
7 the water right and becomes natural condition on
8 operations, then the Delta Wetlands discharges would be
9 limited so that exceedance never occurs.

10 MR. JACKSON: If it's a monthly average, how
11 are we going to know?

12 DR. BROWN: Because you'll be measuring it
13 under the monitoring plan each day. And if the
14 condition is a monthly average exceedance limit, or
15 increase in salinity limit that will be in the
16 operational records. If -- so --

17 MR. JACKSON: So you're going to average it
18 over the month. And if it exceeds it five days and is
19 lower for seven, then --

20 DR. BROWN: I'm not going to do anything. But
21 if the State Board decides on a monthly average limit
22 then that would be probably how they would enforce
23 that.

24 DR. LIST: I think I can, perhaps, respond to
25 that question if I can put up Figure 13 of DW 14. Let

1 me explain this graphic in a minute or two.

2 What it is is the -- all of the statistics of
3 840 months of operation at Rock Slough. And what it
4 states is that if there's 300 parts per million total
5 dissolved solids at Rock Slough, then there's about a
6 65-percent probability at any time that that
7 salinity -- salinity in Rock Slough is going to be less
8 than 300 parts per million.

9 And the difference between the Delta
10 Wetlands's operation and no Delta Wetlands's operation
11 as shown by the difference between the dark blue line,
12 which is with the Delta Wetlands's operation, and the
13 brown line which is no-project operation.

14 MR. JACKSON: So it's higher with the Delta
15 Wetlands's operation to some degree?

16 DR. LIST: No. It's lower. It's always
17 lower. In other words, the probability -- the
18 probability of obtaining any salinity is always going
19 to be -- the probability that the salinity will be less
20 than any value is always going to be higher with the
21 Delta Wetlands's operation.

22 This also shows the range of salinities in
23 Rock Slough. They range from approximately 125 parts
24 per million all the way up to 800 parts per million.
25 You see that the 90th percentile is round about 550

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1 parts per million. So that the range of salinities
2 that occur in Rock Slough extend all the way from there
3 over to there.

4 And what this graphic does is show the
5 fraction of time that the given salinity is obtained.
6 And you see that the net effect of the project is to
7 actually show that the probability of any water -- of
8 having less than -- for example, 300 parts per million,
9 is always going to be higher with the Delta Wetlands
10 Project. So there's an overall improvement.

11 MR. JACKSON: Now, when you look at the Delta
12 Wetlands Project, are you looking only at the reservoir
13 islands, or are you looking at the habitat islands
14 also?

15 DR. LIST: That includes the habitat islands
16 in the Delta Wetlands. When I say Delta Wetlands
17 Project, it includes the reservoir islands and the
18 habitat islands; the net effect of those.

19 See, what this graphic shows is that the net
20 effect of the Delta Wetlands Project on the Delta is
21 going to be pretty minimal.

22 MR. JACKSON: I don't think I have any more
23 specific questions for this witness. I can take the
24 rest of them.

25 HEARING OFFICER STUBCHAER: All right. We

1 have to make some choices here. You could complete
2 your -- continue cross-examining and -- let's see, what
3 time does Dr. List need to leave?

4 MS. BRENNER: Dr. List needed to leave at
5 2:00.

6 HEARING OFFICER STUBCHAER: All right.
7 Mr. Jackson, would you like to continue your
8 cross-examination of the whole panel?

9 MR. JACKSON: I would.

10 HEARING OFFICER STUBCHAER: And I appreciate
11 your concentrating on Dr. List, accommodating his time
12 schedule. He can stay here for the remainder of the
13 time until he has to leave.

14 DR. LIST: Let me say -- I would like to say
15 how graciously the Board is in accommodating my
16 schedule. I really appreciate it. Thank you.

17 HEARING OFFICER STUBCHAER: You're welcome.

18 MS. BRENNER: Excuse me, Mr. Stubchaer.

19 HEARING OFFICER STUBCHAER: Yes.

20 MS. BRENNER: Is Dr. List excused then?

21 HEARING OFFICER STUBCHAER: No. See, if he
22 doesn't have to leave until 2:00, he can stay and be
23 present.

24 And to the interaction of the panel in asking
25 Mr. Jackson and then Mr. Nomellini's questions if we

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1 get to you Mr. Nomellini, before he leaves.

2 MS. LEIDIGH: Does anyone else want to
3 examine?

4 HEARING OFFICER STUBCHAER: I already asked.

5 MR. JACKSON: Dr. Brown, you did the water
6 supply availability analysis?

7 DR. BROWN: Yes.

8 MR. JACKSON: And you did that over a 70-year
9 period?

10 DR. BROWN: Yes.

11 MR. JACKSON: And how many of those years was
12 there water available for this project for
13 appropriation?

14 DR. BROWN: In the great majority of years.
15 It, of course, changes any time you modify the assumed
16 operating criteria, or rules for the Delta Wetlands
17 Project.

18 MR. JACKSON: All right. Using the present
19 rules that are before us, how many years was there
20 water available?

21 DR. BROWN: I guess we'd have to count it on
22 the actual figure. Maybe you've already done that.

23 MR. JACKSON: Well, if you started in -- let's
24 just take the time period from 1987 to now, how many
25 years would there have been water available?

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1 DR. BROWN: We were only simulating through
2 1991.

3 MR. JACKSON: All right.

4 DR. BROWN: So we need to look at the table
5 and count them.

6 MR. JACKSON: There weren't any, were there,
7 that you could have gotten near this kind of water
8 between '87 and '91?

9 DR. BROWN: We'll have to look it up. I'm
10 looking up in my DW Exhibit 10, on Table 3, which is an
11 annual summary of the simulated operations of the
12 project.

13 In 1987 under the final operating criteria
14 simulated, as well as we can with the monthly model,
15 the actual discharges for export in 1987 were 21,000
16 acre feet. In 1988 it was 50,000 acre feet. In 1989
17 it was 16,000 acre feet. And in 1990 and 1991 there
18 were no discharges for export simulated in the monthly
19 model.

20 MR. JACKSON: All right. What does that tell
21 you when you -- when you look at the increasing demands
22 that are -- in terms of the State Water Project
23 expanding to fill its full entitlement? Are you
24 expecting somehow that there's going to be more water
25 available in periods like that than there -- in the

1 future than there was in the past?

2 DR. BROWN: No. Using my Table 3, the first
3 column which indicates the DeltaSOS calculation of
4 available water under the Water Quality Control Plan in
5 1987, there's only 72,000 acre feet occurring during
6 any time during 1987. That would have been available
7 for diversion, which that means that we were flat out
8 of water in 1987.

9 In 1988 there were 417,000 acre feet of
10 available water for diversion under the Water Quality
11 Control Plan objectives, but with the additional
12 constraints being placed on the project for water
13 quality, fisheries protection, you can see that only
14 50,000 of the 400,000 were actually captured by the
15 project and available to increase the water supply.

16 So my testimony is not, certainly, that this
17 project alone can fix California's water supply --

18 MR. JACKSON: I didn't ask that. I said what
19 is the availability for the amount of water being asked
20 for?

21 DR. BROWN: Maybe I'm --

22 MR. JACKSON: I guess the idea that you're
23 doing is a wonderful, beneficial thing of attempting to
24 fix California's water supply; is maybe a noble
25 endeavor, but the question is:

1 Was there water available for appropriation
2 under the condition of this project as you simulated --
3 simulated it in 1988?

4 DR. BROWN: Yes. In 1988 there were 50,000
5 acre feet that was available for this project with all
6 the final operating criteria both with the diversion
7 and the discharge constraints there was still 50,000
8 acre feet that could have made it through this new
9 project if it had been there in '88.

10 MR. JACKSON: Now, for the '88 number are
11 you -- what -- what demands by the Bureau and the State
12 Water Project were you assuming; actual demands that
13 year, or are you assuming the 20/20 Bulletin 160-93
14 number?

15 DR. BROWN: As I briefly mentioned yesterday,
16 one of the major assumptions that we're making in our
17 simulation modeling, in order to protect all senior
18 water rights, is to not place a limit on the demands.
19 That is, in these simulations for this new project, we
20 are assuming that all available water for export under
21 the current rules is taken. We are not limiting it to
22 demands.

23 Of course, you would recognize that in 1987,
24 '88 these years that you're asking about, the demands
25 surely exceed the available pumping capacity without

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1 this project. And these additional water supplies
2 could, certainly, find beneficial use, although, we are
3 not assuming a limited demand.

4 MR. JACKSON: Now, you mentioned a relatively
5 interesting item. In your simulations, how much of the
6 excess transportation capacity for the State Water
7 Project and the Central Valley Project, the pumping
8 capacity does this project use up every year?

9 DR. BROWN: Well, let's just assume that this
10 project exports under a full year of operation
11 diverting 238,000 but after evaporation, exporting,
12 perhaps, 205 which is the most export that is possible
13 under our simulation. Then the project certainly would
14 have used up the 200,000 acre feet of aqueduct in
15 pumping capacity.

16 MR. JACKSON: So by approving this particular
17 appropriation, there would be no excess capacity left
18 in a year like that for water transfers from anywhere
19 in California upstream from the Delta to downstream of
20 the Delta?

21 DR. BROWN: No, that's not true at all,
22 because there's much more than 200,000 of available
23 pumping and transportation capacity in the State
24 Federal project, especially during dry years.

25 MR. JACKSON: Did you then model how much of

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1 the capacity you would be using in an average year, if
2 this project is done?

3 DR. BROWN: Well, it's in the model. I don't
4 have those particular numbers, but you simply compare
5 the aqueduct capacity, which in a combined system is
6 around 15,000 with the increment of unused pumping that
7 this project is proposing to use. And it's a
8 relatively small fraction.

9 MR. JACKSON: But how much of it is of the
10 pumping capacity?

11 DR. BROWN: Well, the same analysis. The
12 current pumping capacity is 11,280. And let's say we
13 used -- or had a month where we could -- where the
14 project could export its entire supply in a month.
15 That would use up about 3500 csf. And so that 3500 csf
16 would be used up for that one month.

17 But there would be other months with remaining
18 capacities. This is one of the things that you can
19 track on a month-by-month water modeling.

20 MR. JACKSON: Mr. Bogdan, how did the EIR deal
21 with a depletion of the capacity for the pumps? Did
22 you analyze that?

23 MR. BOGDAN: Yeah. This is Ken Bogdan,
24 B-O-G-D-A-N.

25 The EIR analyzed the affects of the Delta

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1 Wetlands Project per CEQA/NEPA the direct affects and
2 also the indirect affects of the proposed project, that
3 which is reasonably foreseeable. And as part of that
4 we looked at -- under the State Board's staff and the
5 four staff direction, we looked at the effects of the
6 project on fisheries resources as they are exported at
7 the pumps.

8 MR. JACKSON: But did you look at the effects
9 on the capacity of the pumps to transfer other water?
10 I mean this uses up an increment -- I'm assuming that
11 the State Water Project and the Central Valley Water
12 Project writes a agreement with you folks.

13 MR. BOGDAN: It wouldn't be with me.

14 MR. JACKSON: Right. But did you analyze what
15 effects that would have, say, on CAL/FED's water
16 transfer proposals?

17 MR. BOGDAN: The EIR points out that the scope
18 was limited to the direct and indirect effect as I just
19 described the Delta Wetlands Project. The future uses
20 of that water, or the combination with other
21 facilities, or with other users was not analyzed
22 because that was speculative. And the lead agency's
23 staff wasn't able to define what would happen in the
24 future and assume that there would be future
25 environmental analysis.

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1 MR. JACKSON: Okay. Well, let's take a look
2 at that. What's the place of use that you analyzed in
3 the EIR for this water?

4 MR. BOGDAN: I think I just answered that.
5 The EIR limited the scope of the analysis to the direct
6 and indirect effects of the Delta Wetlands Project and
7 didn't look at place of use --

8 MR. JACKSON: Well -- but if the --

9 MR. BOGDAN: -- because that wasn't -- because
10 that was considered speculative and not reasonably
11 foreseeable.

12 MR. JACKSON: So this -- you analyzed a
13 water -- a water right that essentially belongs to
14 somebody without a specified place of use, or purpose
15 of use?

16 MR. BOGDAN: Well, the -- the purpose of the
17 project is to divert and store water for later export,
18 or for outflow in Delta -- for the Delta estuary. The
19 EIR, as I mentioned -- and CEQA/NEPA do not require, in
20 fact, restrict the lead agency at taking a crystal ball
21 and trying to figure out what types of uses that are
22 out there.

23 If they can't define it they are to disclose
24 they can't define it and limit their analysis for the
25 required approval. That would have to happen later on,

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1 plus it needs further environmental review.

2 MR. JACKSON: So anybody who wants to use this
3 water will then have to do another environmental
4 document somewhere else in the place of use that
5 your --

6 MR. BOGDAN: That would be the determination
7 of that agency.

8 MR. JACKSON: Well, now, some of the places
9 that this water could be used could then have indirect
10 effects back into the Delta, couldn't it?

11 I mean, for instance, if this water was extra
12 water to use in west lands it might well increase
13 salinity levels back into the Delta back down the San
14 Joaquin River?

15 MR. BOGDAN: I wouldn't speculate how another
16 analysis would apply to the Delta.

17 MR. JACKSON: All right. Now, how did you --
18 in the course of setting up the EIR, how did Jones &
19 Stokes deal with the Board's anti-degradation order? I
20 think it's 1629, is it?

21 HEARING OFFICER STUBCHAER: 6816.

22 MR. JACKSON: Which one is it?

23 MR. CANADAY: 6816.

24 MR. JACKSON: 6816, for the record. Thank
25 you.

1 MR. BOGDAN: Jones & Stokes worked with the
2 CEQA lead agencies to develop significance criteria for
3 all the resources. And CEQA/NEPA directed the lead
4 agencies that they're supposed to look at the
5 standards, as certain agencies set them. So for air it
6 would be through air resources board to set a standard.
7 For water quality it was the same thing.

8 Russ can elaborate -- Dr. Brown can elaborate
9 maybe a little bit on the specifics for the water
10 quality significance criteria, but --

11 MR. JACKSON: Yeah, so you would pass that to
12 Dr. Brown?

13 MR. BOGDAN: Sure.

14 MR. JACKSON: Dr. Brown, did you take look at
15 the Board's anti-degradation standard? And if so,
16 wasn't the hypothetical that was just asked by
17 Mr. Maddow a doubling in that circumstance something
18 that violates that anti-degradation statute?

19 DR. BROWN: I think I'm going to defer that --
20 there's too much legal question in that for me to give
21 you a direct answer.

22 MR. JACKSON: Well, then let me ask it in way:
23 Going back to Mr. Maddow's hypothetical situation in
24 which the -- one day the existing water quality is at
25 50 at their diversion, and it doubles to a hundred:

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1 Did you look at all at the number of times
2 that would occur? Did you look at the anti-degradation
3 statute itself? I mean --

4 DR. BROWN: At least in general -- in general,
5 these are exactly the considerations that go into
6 establishing a significance criteria as to some sort of
7 a change. The rationale, again, is that the
8 established objectives do limit the maximum water
9 quality, but there might be significance attached to a
10 change in water quality even before it reaches that
11 established objective. And that is the rationale going
12 into the 20-percent change.

13 The hypothetical of Contra Costa being at 50
14 and the next day waking up and finding themselves at a
15 hundred is, certainly, okay for a hypothetical. But as
16 we did the month-by-month of analysis of real Delta
17 outflows and real established objectives, the
18 possibility of that occurring because of the Delta
19 Wetlands Project is very remote.

20 Nevertheless, we established that since it
21 possibly could occur there should be a mitigation
22 measure attached to the water rights that requires
23 monitoring of the reservoir islands. Remember, this is
24 the only possibility that can give you the change of
25 50, is that if the reservoir water has been -- was

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1 filled with relatively high salinity water in the fall
2 or winter, and now the summer ends up being very good;
3 that is, low salinity water as the water is discharged
4 it would then increase the exports, but only in
5 proportions to the discharge from the Delta Wetlands.

6 And this is the essence of the proposed
7 mitigation. You would then limit the amount of
8 discharge from the islands compared to their salinity,
9 so as not to have more than this established -- in this
10 case, a mitigation standard. And, therefore, would not
11 have a significant detrimental effect on existing water
12 users.

13 MR. JACKSON: Now, this mitigation standard
14 was picked by Jones & Stokes; is that correct?

15 DR. BROWN: No. There is no mitigation
16 standard yet established. We selected significance
17 criteria for doing the comparative impact assessment
18 using the monthly modeling. The measure of 20 percent
19 of the standard may, or may not be adopted by the Board
20 for the actual mitigation standards for this project to
21 be operated in the future.

22 This was simply our estimate of a significance
23 criteria for our job, which was searching for
24 potentially significant impact.

25 MR. JACKSON: Now, did you look at the Board's

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1 anti-degradation order in selecting that 20-percent
2 number?

3 DR. BROWN: I'm saying that has too much of a
4 legal interpretation. I'm not the right person to say
5 that --

6 HEARING OFFICER STUBCHAER: Mr. Jackson --

7 DR. BROWN: -- that's properly included.

8 HEARING OFFICER STUBCHAER: Excuse me. Staff
9 wants to ask some questions of Dr. List before he
10 leaves. And it seems that your line of questioning is
11 not involving him, so maybe we can get him out of here
12 on time.

13 MR. JACKSON: Sure.

14 HEARING OFFICER STUBCHAER: So, who on staff
15 wants to start? Mr. Canaday.

16 ----oOo----

17 CROSS-EXAMINATION OF DELTA WETLANDS PROJECT

18 BY STAFF

19 MR. CANADAY: To get my questions for
20 Dr. List, I have to set a foundation. And for doing
21 that I have to ask a couple questions of Mr. Forkel.

22 HEARING OFFICER STUBCHAER: Fine.

23 MR. CANADAY: Mr. Forkel, your Exhibit DW-7B
24 has -- it's been called "A Day in the Life of the Delta
25 Wetlands Project," and it's an example?

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1 DR. BROWN: That's correct.

2 MR. CANADAY: Okay. And in your example of
3 the different criteria that set limits, or determined
4 the plan and how the project could divert, a great deal
5 of those exhibits were determined by the location of
6 X2.

7 Is that correct?

8 DR. BROWN: Yes.

9 MR. CANADAY: And in the biological opinion --
10 the Federal biological opinion, the criteria that was
11 in that biological opinion was a shift in the X2 by 2.5
12 kilometers.

13 Is that correct?

14 DR. BROWN: That's right.

15 MR. CANADAY: Okay. Now, my question now is
16 for Dr. List.

17 Earlier in your response to Mr. Jackson in one
18 of his questions you said that to actually pinpoint the
19 location of X2, in your opinion, was very, very
20 difficult. Is that a correct statement?

21 DR. LIST: That's correct, a summary of what I
22 said, yes.

23 MR. CANADAY: If Delta Wetlands's operation
24 criteria was linked to the location of X2, how would we
25 establish that location on a realtime basis so that we

1 could monitor their diversions and met the assurances
2 of not impacting any current, or senior water user, or
3 water quality standard?

4 DR. BROWN: That's a very good question.

5 MR. FORKEL: Can I answer? I would like to
6 add one thing, Mr. Canaday. This was a discussion -- a
7 topic of discussion during our ESA consultation. And
8 there was great concern over the movement of X2 on a
9 daily basis determining exact where it is and what's
10 causing it to move.

11 And what the fishery agencies asked for was a
12 calculated shift in the location of X2 based upon some
13 equations that were available. There's a MoniSmith
14 model that would look at flows and antecedent
15 conditions to calculate. And it can represent a
16 location fairly well.

17 And the agencies agreed that that would be a
18 good way to implement this shift. They wouldn't follow
19 the daily route as much as they would follow where it
20 might shift and be limiting us based upon a
21 calculation.

22 MR. JACKSON: Mr. Stubchaer, I would move to
23 strike the answer on the grounds that it's complete
24 hearsay. These agencies could be present to
25 characterize their own positions. To have the

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1 developer talk about what the agencies thought in some
2 back-room meeting without any cross-examination and to
3 take that for any sort of weight whatsoever I think is
4 a violation of due process.

5 MR. NELSON: Joe Nelson representing Delta
6 Wetlands as well. The a CUWA MoniSmith equation
7 calculations fund is part of biological opinions
8 appendix.

9 When the final operations criteria were set
10 out, one of the -- as Mr. Forkel was discussing, one of
11 the questions was how to measure X2. The final
12 operations criteria specifically identified the a CUWA
13 MoniSmith calculation as with Fish and Wildlife
14 Service. And then requested to calculate that
15 position.

16 So it is already in the record. And it's part
17 of two biological opinions. It's what Delta Wetlands
18 is going to have to comply with as a part of its
19 biological opinion.

20 HEARING OFFICER STUBCHAER: Thank you.
21 Mr. Jackson.

22 MR. JACKSON: Yes. They've obviously, the --
23 the actual data is attached to the thing. The
24 impression of what he was told, the problems with using
25 X2, all of that comes from a conversation that cannot

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1 be cross-examined because of the lack of the
2 availability of those witnesses. So if they can
3 identify who it is from the agencies, I'll subpoena
4 them and have them here next with, of course, your
5 approval.

6 HEARING OFFICER STUBCHAER: Thank you for
7 that. Just as a question for you, Mr. Jackson, before
8 I rule, what about other -- what about the biological
9 opinions that are -- that are part of the record that
10 you can't cross-examine, on how do you feel about
11 those?

12 MR. JACKSON: Well, obviously, I don't believe
13 that the Federal Government ought to be allowed to
14 simply file documents and not come testify to them. So
15 I believe they ought to be here.

16 The biological opinions, however, have a
17 little more salinity to them than this change from X2,
18 which we've always used in this room to the new
19 habitat -- let's see, how do they actually put it?
20 The --

21 HEARING OFFICER STUBCHAER: You've answered my
22 question, I think.

23 MR. JACKSON: All right.

24 HEARING OFFICER STUBCHAER: I'm going to
25 overrule the objection, but we will consider the

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1 objection and the weight to be given to this evidence.

2 MR. FORKEL: Mr. Stubchaer, I -- looking at
3 the NMFS biological opinion, and it includes a sentence
4 in there that reads:

5 The result in shift of X2 shall be determined
6 by the comparison of the model estimates of the X2
7 location outflow with and without the Delta Wetlands
8 Project using a mathematical model EG Kimer MoniSmith
9 equation.

10 (Reading.)

11 I mean that's a sentence that's in the
12 opinion.

13 HEARING OFFICER STUBCHAER: All right. Thank
14 you. That was the answer to the question Mr. Canaday
15 was asking.

16 Perhaps, Mr. Canaday, I can say in my
17 professional opinion the X2 is sort of like the Delta
18 net outflow in carriage water. It's part of Delta
19 dogma. And some of the dogma is proven, ultimately, to
20 be tests of substance, and some of it ultimately is
21 proven not to have substance.

22 So when you speak of net Delta outflow, nobody
23 can actually get out there and measure the Delta
24 outflow. It's still included as part of day flow
25 record. And the carriage water for a long time hung

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1 around as part of the dogma of the Delta. And I
2 believe X2 is going to suffer the same fate ultimately.

3 MEMBER DEL PIERO: We ought to send you across
4 the street.

5 HEARING OFFICER STUBCHAER: And do a
6 diversion.

7 MEMBER DEL PIERO: Mr. Anderson's eyebrows are
8 raised in the back of the room.

9 HEARING OFFICER STUBCHAER: Mr. Canaday.

10 MR. CANADAY: So the reality is there would
11 not be a fixed X2 under which the project will operate.
12 It will be a calculated point that isn't realtime; is
13 that correct?

14 MR. FORKEL: No. There's two criteria for X2.
15 One is a calculated shift. And the other is a physical
16 location either in the water Quality Control Plan,
17 which has three ways to measure it, or in our criteria,
18 or final operations criteria, which has a Collinsville
19 criteria. And it says it's the daily average location
20 of a certain EC. So we would be following the location
21 for our final operations criteria on a daily basis and
22 that would tell us when to stop. And we would also
23 have a calculated shift.

24 MR. CANADAY: And you would be monitoring this
25 EC realtime, or -- or monitoring someone who has

1 collected this data?

2 MR. FORKEL: We would be using the data that's
3 already collected. And it actually addressed that if
4 there's any change in those methods. Whatever method
5 replaces it, we would have to use also.

6 MR. CANADAY: Thank you, Mr. Stubchaer.

7 HEARING OFFICER STUBCHAER: Okay. Any other
8 questions by staff? Any Board Members have questions
9 for Dr. List? You weren't all here when we polled
10 before?

11 MEMBER DEL PIERO: One.

12 HEARING OFFICER STUBCHAER: Okay.

13 ----oOo----

14 CROSS-EXAMINATION OF DELTA WETLANDS PROJECT

15 BY BOARD

16 MEMBER DEL PIERO: Given Dr. List's comments,
17 do you have an alternative methodology in terms of the
18 development and utilization of criteria for realistic
19 measurement as to satisfaction of terms and conditions
20 that might be added to this water right?

21 DR. LIST: Yeah. Establish a location where
22 you're going to measure the average EC, fixed point
23 location where you sample at the surface and mid-depth
24 and bottom and establish some criteria for that. But
25 just trying to find some illusionary line where it's

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1 located in the Delta is extremely difficult.

2 MEMBER DEL PIERO: And I assume that answer
3 would be the same answer regardless of whether the --
4 whether the water right applicant were Delta Wetlands,
5 or anyone else attempting to acquire -- either acquire
6 or -- or utilize additional water rights within the
7 Delta?

8 DR. LIST: Yeah. My basic feeling in all of
9 the issues that have been involved in the Delta is that
10 if you're going to establish a criteria then it has to
11 be a criteria that somebody can actually go out and
12 measure.

13 And why establish an artifact which --
14 which -- which becomes a matter of debate so that
15 whether it's the County of Sacramento, or whoever --
16 whomever, if you're going to establish some criteria
17 fix the temperature, or fix the location, or fix the
18 salinity where somebody can go and measure it.

19 MEMBER DEL PIERO: Thank you.

20 HEARING OFFICER STUBCHAER: I'll just add, my
21 recollection is that debate occurred vigorously during
22 the Delta standards --

23 MEMBER DEL PIERO: Gee, I recollect the exact
24 same thing.

25 HEARING OFFICER STUBCHAER: So it's the next

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1 two changes, so if you have a fix location you're not
2 measuring the same salinity. But anyway --

3 MEMBER DEL PIERO: I keep asking those
4 questions, yeah.

5 HEARING OFFICER STUBCHAER: All right. Anyone
6 else have a last question for Dr. List? If not, thank
7 you for your participation. You are excused.

8 DR. LIST: Thank you.

9 HEARING OFFICER STUBCHAER: And I think this
10 would be a good time to take our lunch break. We'll
11 take an hour and we'll reconvene at 12:50 just like
12 yesterday.

13 (Luncheon recess.)

14 ---oOo---

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WEDNESDAY, JULY 9, 1997, 1:51 P.M.

SACRAMENTO, CALIFORNIA

---oOo---

HEARING OFFICER STUBCHAER: Good afternoon.

Please, come back to order. Before you continue, Mr. Jackson, I would like to do some housekeeping matters.

I'd like to go down the list of parties and see who is going to cross-examine and who is not. So I'll start at the top.

Is the Bay Institute here?

UNIDENTIFIED MAN: Excuse me, are you speaking for today or later today?

HEARING OFFICER STUBCHAER: For this session. National Heritage Institute? Kyser Shimasaki? Kevin Wolf? Reclamation District 2059, Delta Water Users, et al.? That was Hoslett Group. Is Mr. Hoslett here? Has anyone seen him? Does anyone know him?

Pacific Gas and Electric, Mr. Moss.

MS. BRENNER: Mr. Moss is here today.

MR. NOMEILLINI: He was here this morning.

HEARING OFFICER STUBCHAER: California Urban Water Agencies?

MR. ROBERTS: Yes, we plan on cross-examining.

HEARING OFFICER STUBCHAER: East Bay Municipal

1 Utility District?

2 MR. ETHERIDGE: We plan on cross-examining.

3 HEARING OFFICER STUBCHAER: Is your last name
4 Etheridge?

5 MR. ETHERIDGE: It is.

6 HEARING OFFICER STUBCHAER: I missed your
7 first name.

8 MR. ETHERIDGE: Fred.

9 HEARING OFFICER STUBCHAER: Fred, thank you.
10 Diablo Water District, Mr. Bold.

11 UNIDENTIFIED MAN: Mr. Stubchaer, I had a
12 conversation with Mr. Bold prior to the commencement of
13 the hearing, and he indicated he was not planning on
14 doing any cross-examination.

15 HEARING OFFICER STUBCHAER: Thank you. Mr.
16 Turner?

17 UNIDENTIFIED MAN: He said he would reserve
18 the right.

19 HEARING OFFICER STUBCHAER: Okay. Department
20 of Water Resources?

21 UNIDENTIFIED MAN: Cathy Crothers is not in
22 right now, but I understand that we'll be examining.

23 HEARING OFFICER STUBCHAER: Thank you. State
24 Water Contractors.

25 UNIDENTIFIED WOMAN: Mr. Schulz isn't here

1 right now, but we will be planning to.

2 HEARING OFFICER STUBCHAER: Thank you. Fish
3 and Game, I already know your answer. Peter Margiotta?

4 MR. MARGIOTTA: Not today.

5 HEARING OFFICER STUBCHAER: Amador County,
6 Mr. Lilly? Anyone seen him today?

7 UNIDENTIFIED MAN: No, sir.

8 HEARING OFFICER STUBCHAER: Caltrans,
9 Dana Cowell? Did someone say earlier that they had
10 contact? Did he indicate?

11 MR. SUTTON: He indicated that he did not wish
12 to cross-examine the witness from Delta Wetlands for
13 traffic.

14 HEARING OFFICER STUBCHAER: Thank you.

15 MR. SUTTON: It was actually a Jones & Stokes
16 witness.

17 HEARING OFFICER STUBCHAER: That's what you
18 told me this morning, but I didn't write it down.
19 Okay.

20 Mr. Jackson, ready to continue? And how much
21 time do you think you will require?

22 MR. JACKSON: 40 minutes.

23 HEARING OFFICER STUBCHAER: Including this
24 morning, or after this --

25 MR. JACKSON: No, that's this afternoon, sir,

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1 if that would be all right.

2 HEARING OFFICER STUBCHAER: Okay. That's a
3 stipulated amount that you agree to abide by; is that
4 right?

5 MR. JACKSON: That's one of the reasons I
6 overestimated it, sir.

7 HEARING OFFICER STUBCHAER: Okay. Go.

8 ----oOo----

9 CROSS-EXAMINATION OF DELTA WETLANDS PROJECT
10 BY CALSPA, COMMISSION TO SAVE MOKELUMNE
11 BY MICHAEL JACKSON

12 MR. JACKSON: Dr. Brown, calling your
13 attention to your testimony on water quality at page 4
14 of Exhibit DW 12, at that point, sir, you recounted the
15 results of water quality analysis presented in the
16 DEIR; is that correct?

17 DR. BROWN: On page 4, I'm giving just a brief
18 summary of what's in the Draft EIR document.

19 MR. JACKSON: All right. So you did find that
20 the Delta Wetlands Project could result in significant
21 salinity increases at Chipps Island, Eminton Jersey
22 Point, and in Delta exports during periods of low
23 outflow?

24 DR. BROWN: That's right. That was the
25 finding.

1 MR. JACKSON: All right. Now, can you
2 categorize what the salinity increases would be in
3 terms of some quantitative measurements?

4 DR. BROWN: Yes. Each the of calculated
5 monthly increases at each of those locations is shown
6 in the Draft EIR document, which are results from the
7 water quality model.

8 MR. JACKSON: Now, you also indicate that the
9 discharges could result in significant increases of DOC
10 concentration in both Delta -- in Delta exports. What
11 would be the magnitude of those DOC increases?

12 DR. BROWN: Well, the significant --

13 MR. JACKSON: Terms of percentage.

14 DR. BROWN: -- that we -- State Board Staff
15 directed us to use is the 20 percent of the average
16 export value for DOC. This is a numerical 0.8
17 milligrams per liter of DOC. And monthly evaluation of
18 potential maximum effects found that there is a
19 possibility that there would be a discharge condition
20 that would raise the DOC by that amount.

21 MR. JACKSON: All right. So anything under 20
22 percent you would have found to be insignificant. So
23 this indicates that at certain times and in certain
24 situations there is more than a 20-percent increase; is
25 that correct?

1 DR. BROWN: That is right. The plan model
2 really is allowing us to look at the possibility that
3 that magnitude would occur. And we found that there is
4 a possibility of that.

5 MR. JACKSON: And if you -- if you took a look
6 at it in terms of daily situations, would you expect
7 that there would be daily circumstances in which the
8 monthly average would be exceeded?

9 DR. BROWN: There would, certainly, be some
10 days that are higher and some days that are lower,
11 going into a monthly average value.

12 MR. JACKSON: Now, do you know what the worse
13 case would be in terms of a daily increase?

14 DR. BROWN: No, because this planning analysis
15 is done just with monthly average flow values.

16 MR. JACKSON: All right. So if I were a fish
17 and I were swimming near the area where it was
18 exported, I might very well on a monthly basis be
19 exposed to increases of DOC, or dissolved oxygen in
20 excess -- on a daily basis in excess of the monthly
21 figure?

22 DR. BROWN: Well, it's not likely that the
23 project will -- the project affects vary from
24 day-to-day by very much. Remember, these things
25 controlling the project effects are the reservoir

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1 concentrations, which remains relatively constant and
2 the discharge quality which would also remain
3 relatively constant.

4 So that the day-to-day project effects are
5 quite similar to the monthly average effects that are
6 being used for this assessment.

7 MR. JACKSON: But the -- that brings us to a
8 point, actually, to a 38 point. These discharge --
9 material, this enhanced DOC, the enhanced -- in the
10 next paragraph you indicate there could also be
11 significant changes in other water quality variables:
12 Temperature, suspended solids, dissolved oxygen and
13 chlorophyll. They come from a released point, do they
14 not? They're not released on every site of the island
15 equal -- equal?

16 DR. BROWN: That's right. These are all
17 coming out of the discharge pump station one for each
18 reservoir island.

19 MR. JACKSON: And from those discharge pump
20 stations there are going to be conditions before
21 delusion takes affect in which right next to these pump
22 stations these things could be elevated relatively
23 substantial before they mix with the rest of the Delta
24 water.

25 Isn't that true?

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1 DR. BROWN: That's certainly right. In fact,
2 if you go right to the discharge pump you will measure
3 exactly the reservoir concentration. And if a fish is
4 right in front of the pump they will observe, or
5 experience exactly the reservoir release concentration,
6 or temperature, or DO.

7 MR. JACKSON: All right. Now, you -- you
8 indicated -- and maybe you're not the right -- maybe
9 Mr. -- excuse me, is it Folke, is it?

10 MR. FORKEL: Forkel.

11 MR. JACKSON: I'm sorry, sir. You're not
12 doing agricultural on any of these islands, are you, I
13 mean under your program.

14 MR. FORKEL: Currently?

15 MR. JACKSON: I mean --

16 MR. FORKEL: Under the proposed project?

17 MR. JACKSON: Yeah, under the proposed
18 project.

19 MR. FORKEL: There's a slight amount of
20 agricultural including HMP. There is some seasonal
21 wetlands and agricultural operations.

22 MR. JACKSON: All right. And -- but on the
23 reservoir islands you're doing no agricultural?

24 MR. FORKEL: Correct.

25 MR. JACKSON: And you're releasing water

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1 through a specific point; specific apparatus, correct?

2 MR. FORKEL: Yes, on the reservoir islands.

3 We have two pump stations; one on each island.

4 MR. JACKSON: Did -- Mr. Bogdan, did you take
5 a look at whether or not these releases with the
6 elevated temperature suspended solids, dissolved
7 oxygen, chlorophyll, significant increases in DOC, and
8 significant salinity increases would require a NPDES
9 permit as a point source polluter?

10 MR. BOGDAN: The EIR/EIS in the -- I believe
11 it's chapter four, identifies a number of different
12 permits that will required for the Delta Wetlands
13 Project. I can't recall if that's listed as one of
14 them.

15 MR. JACKSON: Didn't seem to be. Is there any
16 reason for that?

17 MR. BOGDAN: Is there a reason why that --

18 MR. JACKSON: Yeah, why you didn't consider
19 whether or not -- whether or not these discreet
20 releases would require such a permit?

21 MS. BRENNER: Mr. Stubchaer, this is asking
22 for a legal conclusion. And this witness is not acting
23 as a lawyer in this case.

24 MR. JACKSON: No, sir. I'm not asking this
25 gentleman --

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1 MS. BRENNER: It's a legal issue as to whether
2 an NPDES permit is required?

3 MR. BOGDAN: We did state in chapter four,
4 certain aspects of the -- under the jurisdiction of the
5 State Board and the Regional Boards. And it does
6 mention that MPDS could be triggered, but that is their
7 jurisdiction.

8 MR. JACKSON: It's up to the Board. And
9 you -- there's nothing in your EIR/EIS that covers the
10 question of whether or not an NPDES permit would be
11 required?

12 MR. BOGDAN: Well, CEQA/NEPA they don't
13 require a lead agency to analyze the environmental
14 effect of their action. They don't specifically. That
15 the project analysis, as far as the environmental
16 impacts are concerned, whether permits are required or
17 not. NEPA require that the lead agency require, where
18 appropriate, the type of permits that may be required
19 and the type of agencies that may be involved. And
20 that's what chapter four does.

21 MR. JACKSON: All right.

22 MR. BOGDAN: But this isn't part of the
23 environmental impact assessment.

24 MR. JACKSON: Now, did you -- did you in terms
25 of your environmental assessment, that was probably

1 done before these hearing issues in the notice was
2 done, correct?

3 MR. BOGDAN: The Environmental Impact Report
4 was issued in September of 1995.

5 MR. JACKSON: All right. Have you taken a
6 look at the hearing issues, the question number two,
7 for instance:

8 Will the issuance of water right permits for
9 this project best conserve the public interest?

10 (Reading.)

11 Did you take a look at any public interest
12 requirements in the EIS analysis of that?

13 MR. BOGDAN: You may be separating out Jones &
14 Stokes involvement from the State Board and the Corp.
15 We assisted the Corp and the State Board in preparing
16 the EIR/EIS. And so one of the directives in working
17 with the Corp and the State Board was specifically to
18 look at issues that effect public interest.

19 MR. JACKSON: And --

20 MR. BOGDAN: And those are fisheries
21 resources, recreation, and a whole list that fall under
22 the resource categories that are analyzed in the
23 CEQA/NEPA document.

24 MR. JACKSON: Did you make -- did you make any
25 balancing, or evaluation in the document as to what you

1 determined the public interest to be, either way?

2 MR. BOGDAN: Well, CEQA/NEPA don't require
3 that --

4 MR. JACKSON: So you didn't do it?

5 MR. BOGDAN: -- in that part of the analysis.

6 MR. JACKSON: So you didn't do it?

7 MR. BOGDAN: The EIR/EIS does not balance.

8 MR. JACKSON: Okay. Now, going back to,

9 Dr. Brown.

10 Dr. Brown, when the -- when the water is
11 released from the islands after these months of
12 storage, it will contain a lot of algae material, a lot
13 of solid material, wouldn't it, a lot more than the
14 receiving water?

15 DR. BROWN: Not necessarily.

16 MR. JACKSON: Didn't your -- didn't your
17 analysis indicate that there would be substantial
18 vegetative material in the material that you released
19 through these point sources; these pumps?

20 DR. BROWN: No. We did not conclude that.

21 MR. JACKSON: No -- no increase in terms of
22 solids, or chlorophyll, or no -- no increase in
23 temperature from the -- from the water storage?

24 DR. BROWN: No. Our findings is simply that
25 because these processes -- sorry, these variables such

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1 as solids, or algae, depend on many natural processes
2 that may occur in the reservoir islands. And since we
3 could not be sure what the discharge conditions would
4 be, we simply find that it is a possibility that these
5 variables would be in quantities sufficient to being
6 considered a significant environmental effect as they
7 reached the exports.

8 And so the mitigation requirements is based
9 not on knowing what the quantities were, but rather
10 just understanding that there is the possibility. And,
11 therefore, requiring that the project as a part of its
12 normal operating procedures keep track of what the
13 reservoir concentrations of these things are.

14 Because the control, the management control in
15 this case would be to reduce the diversion, so that the
16 contribution at the exports of these possibly raised
17 concentrations would not cause a significant effect.

18 MR. JACKSON: Something that could be dealt
19 with by NPDES probably on the pumps, right?

20 DR. BROWN: Well, it's not --

21 MR. JACKSON: A condition.

22 DR. BROWN: It's not my deciding how that
23 would be accomplished.

24 MR. JACKSON: So you in terms -- in terms of
25 hearing issue number one the third -- or fourth

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1 sentence:

2 Since what permit terms and conditions should
3 the State Water Resources Control Board include in any
4 water rights permit issued on these applications to
5 protect prior rights and, of course, the legal users,
6 fish and wildlife.

7 (Reading.)

8 You don't have an opinion?

9 DR. BROWN: My findings in the draft document
10 is that a mitigation measure involving routine daily
11 monitoring for these variables of concern should be
12 included as one of the terms and conditions. But it is
13 a general recommendation, not a specific term or
14 condition.

15 MR. JACKSON: How would you -- you would
16 assume that the State Board, then, would enforce this
17 general mitigation?

18 DR. BROWN: Yes. That's, of course, one of
19 the things that they are determining.

20 MR. JACKSON: Okay. In looking at
21 temperature, I believe in your charts you indicated
22 that 12 -- maybe this was the Fisheries. Is
23 Mr. Shaul --

24 MR. SHAUL: Right here.

25 MR. JACKSON: Hi. You determined that a

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1 12-degree increase would be a significant increase in
2 terms of the health of, say, spring-run salmon?

3 MR. SHAUL: I think you're referring to a
4 separate analysis that was done by Keith Marine.

5 MR. JACKSON: Okay. Mr. Marine?

6 MR. MARINE: I'm Keith Marine, M-A-R-I-N-E.
7 Your question, please.

8 MR. JACKSON: Yes. I believe that you
9 determined that a 12-percent increase in temperature
10 would be a significant increase that might effect the
11 health of, say, spring-run salmon?

12 MR. MARINE: Yeah. A 12 -- 12-degree maximum
13 differential between the discharge water and the
14 receiving water was determined to be an upper limit
15 that could have -- could cause acute thermal stress to
16 Delta smelt, in particular, and was well within the
17 established thermal -- acute thermal tolerances of
18 chinook salmon. So it would be a very protective level
19 for spring run chinook salmon, say, from the acute
20 thermal affects. And it would also protect, or be at
21 the level of tolerance for Delta smelt.

22 MR. JACKSON: Now, is that true for all life
23 stages of chinook salmon?

24 MR. MARINE: It would be -- it would apply to
25 the life stages that were tested as part of that study.

1 And I believe that those numbers that range -- they're
2 tolerances level is from 16 -- ranges from 16 to 20
3 degrees Fahrenheit that would primarily be on
4 juveniles.

5 MR. JACKSON: And calling your attention to
6 Mr. Shaul's testimony, DW-15, and there is a Delta
7 species occurrence by life stage in that one, I
8 believe.

9 MR. MARINE: Yes.

10 MR. JACKSON: And either one of you can answer
11 this since it's in Mr. Shaul's area.

12 The November/December/January period there are
13 fry and juvenile rearing and migrating through the
14 Delta for spring run?

15 MR. SHAUL: Yes, that's true.

16 MR. JACKSON: And since the dams have blocked
17 most of the original spring run rearing and spawning
18 habitat, thus, the Delta has become a critical rearing
19 area for this fish; isn't that true?

20 MR. SHAUL: The Delta is the rearing area for
21 these fish. I'm not sure what you mean by the word
22 "critical."

23 MR. JACKSON: Well, they've lost 95 percent of
24 their spawning and rearing habitat by the building of
25 dams, haven't they?

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1 MR. SHAUL: That's true.

2 MR. JACKSON: That would mean that the
3 remaining five percent might be absolute -- might be
4 critical, would that be fair enough to say?

5 MR. SHAUL: The remaining five percent of the
6 population itself -- I guess "critical" is the word. I
7 mean, I agree that the dam definitely block a
8 significant part of the spring water.

9 MR. JACKSON: Would you argue with 95 percent?

10 MR. SHAUL: No, I have no basis to argue with
11 that.

12 MR. JACKSON: All right. So the remaining
13 five percent of the original habitat would be very
14 useful, could we put it that way?

15 MR. SHAUL: Well, the remaining habitat is --
16 of spring runs in rivers is definitely critical to
17 spring run, that's true.

18 MR. JACKSON: Now, the --

19 MR. VOGEL: Excuse me. My name is Dave Vogel.
20 Could I provide a little more collaboration on that?

21 HEARING OFFICER STUBCHAER: With the consent
22 of Mr. Jackson.

23 MR. JACKSON: Sure. Dave.

24 MR. VOGEL: In response to your question as
25 far as this 95-percent critical habitat and so forth,

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1 the -- the spring-run salmon has never been designated,
2 or that the habitat for that spring run has never been
3 designated as critical habitat for the Delta.

4 The primary rearing ground for spring run in
5 this case is in the tributaries of the upper Sacramento
6 River. And, in fact, it's quite unusual for spring run
7 fry to end up in the Delta and also end up in the
8 Central Delta.

9 So the principle critical rearing habitat
10 using the connotation that you've implied here would
11 be, in my opinion, in Mule Creek and Deer Creek.

12 MR. JACKSON: Where this year there aren't any
13 fish, right? I mean it got wiped out in Mule Creek and
14 of Deer Creek this year.

15 MR. VOGEL: I'm not aware of that.

16 MR. JACKSON: The sampling that was done found
17 no fry or juveniles at all.

18 MR. VOGEL: I don't know what you mean by
19 that. You mean displaced with high flows?

20 MR. JACKSON: I would -- either displaced, or
21 buried, because they're not there.

22 MR. VOGEL: I think what you're referring to
23 is during extremely high flow conditions the spring run
24 fry can be displaced from those tributaries.

25 MR. JACKSON: But you are aware that when they

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1 went to look for them this year under the monitoring
2 plan that was supposed to keep us from going ahead and
3 listing them, that they didn't find any?

4 MR. VOGEL: I'm not aware of that, but I would
5 say it wouldn't surprise me because of the high flows.

6 MR. JACKSON: All right. So when that happens
7 they get washed into the Delta, we hope?

8 MR. VOGEL: Yes. It depends --

9 MR. JACKSON: And then the Delta becomes --

10 MR. VOGEL: It depends on what part of the
11 Delta you're referring to.

12 MR. JACKSON: Dave, have you seen Figure 2,
13 this "Delta Species Occurrence by Life Stage"?

14 MR. VOGEL: Yes. I have.

15 MR. JACKSON: Do you disagree that there's fry
16 rearing, juvenile rearing, and juvenile migration in
17 the months of November, December, January, and
18 February, March, and April in the Delta itself?

19 MR. VOGEL: No. I would not disagree with
20 that, because that's for the Delta in its entirety and
21 it doesn't designate specific locations within the
22 Delta.

23 MR. JACKSON: Okay. Now, if these small fish
24 are in the Delta and the pumps are operating and we're
25 going to increase the amount of the water, say, by

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1 9,000 csf, wouldn't you expect that that would help
2 bring them down to the pumps?

3 MR. VOGEL: In this particular case -- and I
4 think it's extremely important to put it in context.
5 Mr. Forkel, has referred to "A Day in the Life of the
6 Delta Wetlands Project," and to better characterize
7 what happens to these specific species particularly the
8 specific life stages such as the here it shows the
9 spring-run salmon, you have to go through a day in the
10 life of the fish. And how it can get into the Delta.

11 So first using your example, for a -- excuse
12 me, for spring run fry to end up in the Delta at any
13 location as a fry, which means a little life stage
14 which is only about an inch and a half long, it has to
15 be displaced with extremely high flows off its rearing
16 ground during the winter months. And so the first
17 circumstance is that that's an unusual occurrence. Let
18 me give you an example, perhaps, what happened this
19 last year. So --

20 MR. JACKSON: So -- so --

21 HEARING OFFICER STUBCHAER: You have to wait a
22 minute, Mr. Jackson.

23 MR. JACKSON: Excuse me. Go ahead.

24 MR. VOGEL: So what happens to these small fry
25 during, say, January, February, or March that these

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1 spring run fry out of Middle Creek and Deer Creek are
2 moved downstream about 200 miles to the Delta during
3 these very high flow conditions.

4 Now, in most cases under those conditions we'd
5 expect them to migrate down the Sacramento River
6 portion to the north are portion of the Delta. It's
7 not likely that they would be diverted into the Central
8 Delta, because my understanding is at that time the
9 Delta cross channel gates would be closed.

10 So the primary route of entry would be through
11 Georgiana Slough. Now, looking at the proportion of
12 the flows going into the Central Delta through the
13 Georgiana Slough have compared to the flow going down
14 the Sacramento River portions of the Delta --

15 MR. JACKSON: Which we saw an example of here?

16 MR. VOGEL: Right. That proportion diminishes
17 as the flows increase in the Lower Sacramento River.

18 Now, at this point you have to go back to "The
19 Day in the Life of the Delta Wetlands Project" to see
20 what criteria, what conditions have been superimposed
21 upon those project operations before they can ever
22 begin to divert water.

23 Now, as I said yesterday, there are initial
24 diversion restrictions such that -- in this particular
25 case if diversions have not occurred by November 30th,

1 X2 has to be downstream of Chipps Island for at least
2 ten days before Delta Wetlands can even begin diverting
3 water into the two reservoir islands.

4 In addition, there's restrictions on -- going
5 back through my notes there -- at this point I think I
6 need the operators help to try to explain what
7 restrictions are imposed at that time, say, in the
8 winter months of --

9 MR. JACKSON: I'll tell you what, let's do it
10 by question and answer so I don't lose all of my time
11 to your answer.

12 MR. VOGEL: Okay. I guess what I'm trying to
13 lead to is that you can't pick a hypothetical situation
14 like you did, because the fish may or may not even be
15 within the zone of impact. And --

16 MR. JACKSON: Are you telling me then that
17 this document that was filed by Mr. Shaul is incorrect;
18 that there are not fry rearing in the Delta in those
19 months?

20 MR. VOGEL: No, not at all. In fact, I
21 thought I was clear on that. That also represents
22 northern portions of the Delta, meaning the Lower
23 Sacramento River.

24 MR. JACKSON: Do you have any idea how many it
25 would be in terms of percentage that would be isolated

1 in the Sacramento River in the month of December?

2 MR. SHAUL: I guess before we go on to that
3 question, this is a generalized picture of
4 distribution. And it doesn't imply that, you know,
5 there's a constant number, or percentage of fry in the
6 Delta at all, or where they're located in the Delta as
7 Mr. Vogel said. And, no, I mean there's no way to know
8 what percentage -- you're talking about a percentage of
9 the population?

10 MR. JACKSON: Yes.

11 MR. SHAUL: No.

12 MR. JACKSON: And how does Delta Wetlands
13 intend to determine whether or not -- now, during the
14 month of December there is neither a diversion
15 prohibition, nor a discharge prohibition. And, in
16 fact, those will be months in which this project is
17 operating, wouldn't they, the month of December?

18 MR. SHAUL: Yes, that's true.

19 MR. JACKSON: Well, what steps have been taken
20 to make sure that you don't effect the populations by
21 this -- both the diversion of 9,000 csf at any one
22 time, maximum, down to about 3,000 csf?

23 How do you determine realtime, what effect
24 you're having on fry of the spring run?

25 MR. SHAUL: How do you determine realtime?

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1 MR. JACKSON: Yeah.

2 MR. SHAUL: That's a good question.

3 MR. JACKSON: Okay.

4 MR. SHAUL: And there are no -- I can't answer
5 that question.

6 MR. JACKSON: Okay.

7 MR. SHAUL: There's not any program existing
8 to determine realtime what's happening to spring run
9 chinook salmon in the Delta.

10 MR. JACKSON: Well, let's say you have one of
11 these circumstances in which the 20-percent area is
12 exceeded on -- on one of these criteria water quality
13 criteria.

14 You know, you put algae -- a bunch of algae in
15 the water, and aren't they immediately going to take
16 the oxygen out of the water?

17 MR. SHAUL: No. That's not true at all. It
18 depends on what time of day they may put oxygen into
19 the water.

20 MR. JACKSON: All right. But at certain times
21 it could happen, right?

22 MR. SHAUL: Could what --

23 MR. JACKSON: Remove oxygen.

24 MR. SHAUL: Right. But you're -- you need to
25 look at the whole Delta in context and the species that

1 you're talking. About where are they going to be in
2 the Delta? Where they're going to be located and why?
3 Would you expect a significant portion of the
4 population to be exposed to that condition? Do spring
5 run occur in the South Delta where Delta -- or Central
6 South Delta of the Delta Wetlands is discharged?

7 MR. JACKSON: Those are questions that I
8 looked all through the EIR/EIS to find out. And I
9 didn't find it.

10 MS. BRENNER: And I'd like to make a
11 objection, Mr. Stubchaer, because he just asked a
12 question --

13 MR. JACKSON: Where is that information in
14 either the EIR/EIS, or in the testimony that's been
15 filed by the fishery biologist for Delta Wetlands?

16 MR. SHAUL: So exactly what information are
17 you looking for?

18 MR. JACKSON: How you're going to know where
19 the spring run fry and juveniles are real-time before
20 you take the water out, or put the altered water back
21 in?

22 MR. SHAUL: Well, we already have a pretty
23 good idea of how fry and juvenile are distributed
24 geographically in the Delta for spring run. I mean
25 that's from existing data.

1 MR. JACKSON: All right. And you after --
2 when you add -- I take it when you release the water
3 back into the Delta and it goes to the pumps, that
4 increases the flow towards the pumps, correct?

5 MR. SHAUL: In the channels, the islands, and
6 the pumps?

7 MR. JACKSON: Yeah.

8 MR. SHAUL: That's correct.

9 MR. JACKSON: And how do you know that you
10 don't take the San Joaquin fry and juvenile when you do
11 it? I mean, what mechanism do you have to prevent the
12 one catastrophe on one day?

13 MR. SHAUL: Well, for one thing you're -- by
14 the way you're asking the question it is presenting a
15 rather simplified view of what is going on in those
16 channels. As you remember from the figure that Mr. --
17 Dr. Brown showed, the change in net flow superimposed
18 on the tidal flow is quite small. So the tidal flows
19 are going back and forth.

20 And we're also talking about a superimposition
21 of Delta Wetlands's discharge on top of net flows that
22 are already moving -- or likely to already be moving
23 towards the pumps, because of pumping.

24 So it's really a change in condition. And we
25 did look at that, what exactly is the magnitude of that

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1 change and condition. And what is the likelihood for
2 salmon to be migrating down that corridor.

3 MR. VOGEL: Mr. Jackson, I think I have a
4 fairly simple answer for you. Again, there are no
5 realtime monitoring programs as I believe you
6 characterize them, to determine the absolute presence
7 or absence of salmon related to the project.

8 However, the way -- that my understanding of
9 how JSA modeled those effects was based on the best
10 available data developed and provided by the fishery
11 resource agencies to determine the specific magnitude,
12 location, timing, and duration of exposure of those
13 fish species and, in particular, the life phases that
14 could be effected by the project.

15 MR. JACKSON: So, in other words, we don't
16 know?

17 MR. VOGEL: No. I thought I made that clear.
18 It's based on the best available information provided
19 by the fishery agencies which they provided to JSA on
20 the specific timing, location, and magnitude of fish
21 species of importance within the vicinity of the
22 project that may be affected by the project operations.

23 MR. JACKSON: So -- go ahead.

24 MR. SHAUL: So it's the best available data
25 that they had.

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1 MR. JACKSON: So the best available data is
2 reflected in the chart that says that they're present
3 but we don't know where; is that right?

4 MR. SHAUL: No, that's not what the chart --
5 this chart represents temporal occurrence. We also
6 have geographic distribution. We know where various
7 races of chinook salmon enter the Delta. We know where
8 various other species occur in the Delta, and which
9 parts of the Delta are used for which life stages.
10 That information was all used in the fisheries's
11 analysis.

12 MR. JACKSON: Mr. Shaul, at page 25 of your
13 testimony, you list significance criteria you used.
14 And you reference the State CEQA Guidelines.

15 Are you referring to Section 15065 of the CEQA
16 Guidelines?

17 MR. BOGDAN: Ken Bogdan, B-O-G-D-A-N. This is
18 taken from Appendix G of the CEQA Guidelines.

19 MR. JACKSON: Now, these criteria, this
20 20-percent criteria, is that the one you used?

21 MR. SHAUL: You're referring to the criteria
22 that Dr. Brown used?

23 MR. JACKSON: Yeah. Did you use the same --
24 what threshold of significance did you use for the
25 affects on the fishery either the Delta smelt, or the

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1 chinook salmon?

2 MR. SHAUL: As I stated in my testimony -- I'm
3 not sure how you're referring to the use of 20-percent
4 criteria.

5 MR. JACKSON: Well, let's take that -- let's
6 take that away. That was the water quality criteria
7 and we beat that one to death.

8 What criteria did you use to determine
9 significance in regard to the effects of this project
10 on either the Delta smelt, or the chinook salmon?

11 MR. SHAUL: The criteria I applied were more
12 qualitative than Dr. Brown's. They considered the
13 conditions in the Delta without the Delta Wetlands
14 Project, and the conditions with the project.

15 And those -- and the potential effects of
16 changes in those conditions on those species that
17 occurred in the Delta at that time. And if it was
18 found that -- if it was found that there was a
19 substantial change in those conditions that could lead
20 to a substantial change in the distribution, or
21 abundance of the species, then we would identify the
22 significant impact.

23 MR. JACKSON: Well, that's -- that's -- that's
24 interesting, but my understanding of the existing
25 biological opinions for both the Federal and State

1 pumps have quantitative criteria in terms of number of
2 fish killed.

3 Did you take a look at those to determine
4 either -- whether or not you should have such criteria,
5 or whether or not you are going to cause those numbers
6 to go up at the State or Federal pumps by your
7 operations?

8 MR. SHAUL: I'm not clear which biological
9 opinions you're referring to.

10 MR. JACKSON: The one for the State and
11 Federal pumps.

12 MR. SHAUL: And for Delta smelt, or --

13 MR. JACKSON: For Delta smelt and/or chinook
14 salmon.

15 MR. SHAUL: So that -- and the question is?

16 MR. JACKSON: The question is: Whether or not
17 you looked at either the EIR -- whether the EIR/EIS, or
18 your testimony here today that you prepared for this
19 hearing looked at the question of whether or not your
20 operations could cause a number of chinook salmon, or
21 Delta smelt killed at the pumps to go up?

22 MR. SHAUL: That's one of the things that we
23 considered, yeah. How would the changes in conditions
24 contribute -- or would they contribute to an
25 increase --

1 MR. JACKSON: And what were your conclusions?

2 MR. SHAUL: -- or loss -- in the EIS?

3 MR. JACKSON: Yes.

4 MR. SHAUL: For some species during some life
5 stages we found a significant impact.

6 MR. JACKSON: Thank you. I think I've just
7 got a couple more questions here if I can find the
8 right --

9 Mr. Shaul, on page 34, question 67 of your
10 testimony, you testified that available information
11 doesn't indicate that structures along the Delta
12 channels would increase predation.

13 Is that correct?

14 MR. SHAUL: I wasn't -- that's -- what I
15 stated was that available information does not indicate
16 the structures would increase predation to a level that
17 would cause significant impact.

18 MR. JACKSON: All right. Now, again, were
19 back to the question: How did you determine -- I mean,
20 obviously, you're hedging because you're saying it's
21 not significant.

22 You're -- you're -- you're agreeing that it
23 does happen?

24 MR. SHAUL: That there could be --

25 MR. JACKSON: Structures increase predation in

1 a number of occasions, don't they?

2 MR. SHAUL: That's true, depending on the
3 situation, yes.

4 MR. JACKSON: And --

5 MR. SHAUL: They -- I mean structures can also
6 reduce predation depending on what the design of the
7 structures are. But in this case, this type of
8 structure, we would expect that it could provide
9 habitat for some species.

10 MR. JACKSON: Are you familiar with the
11 studies done by the East Bay Municipal Utility District
12 regarding predation that you would find in Exhibit 3 of
13 the East Bay MUD filing in this case?

14 MR. SHAUL: Predation in the Delta?

15 MR. JACKSON: Yeah, predation from their
16 structures, yes.

17 MR. SHAUL: From the East Bay MUD Utility
18 District, I'm not familiar -- no, I'm not familiar with
19 it actually -- no, I'm not.

20 MR. JACKSON: So you have not read East Bay
21 Exhibit 3 in preparation for --

22 MR. SHAUL: I have read part of it, but I
23 don't remember that specific part.

24 MR. JACKSON: Page 38, question 79, the
25 in-channel construction window described in the

1 DEIR/EIS was from September to December, was it not?

2 MR. SHAUL: In the EIR/EIS?

3 MR. JACKSON: Yes.

4 MR. SHAUL: That's true.

5 MR. JACKSON: And the in-channel construction
6 window in the final operations criteria is from June to
7 November, isn't it?

8 MR. SHAUL: That's correct.

9 MR. JACKSON: So can you explain how this
10 longer construction window will offer the same level of
11 protection as the construction window in the DEIR/EIS,
12 given that additional species may -- additional numbers
13 may occur in this longer window?

14 MR. BOGDEN: I think the question that was
15 asked had to do with the mitigation, as substituted,
16 would also reduce the impact to a less than significant
17 level. I don't know the question asked: Would it be
18 equal?

19 MR. JACKSON: Sorry, it was -- so the fact
20 that the question was phrased in a way that you didn't
21 need to answer this longer period of time --

22 MS. BRENNER: Mr. Stubchaer --

23 HEARING OFFICER STUBCHAER: Yes.

24 MS. BRENNER: I'd like to object to the line
25 of questioning that he continues to engage in, which

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1 mischaracterizes the witness's testimony. He continues
2 to make these long speeches on what he feels what the
3 witnesses is saying. And oftentimes he's incorrect,
4 and I'd like to make a continuing objection to that
5 type of.

6 HEARING OFFICER STUBCHAER: Your objection is
7 noted and you have a little more than a minute,
8 Mr. Jackson.

9 MR. JACKSON: Thank you.

10 HEARING OFFICER STUBCHAER: So I think the
11 problem would be resolved temporarily, sir, very
12 temporarily. We'll see you later.

13 MR. JACKSON: The -- Mr. Vogel, you did some
14 winter run mortality modeling, did you not?

15 MR. VOGEL: Could you be more specific?

16 MR. JACKSON: Well -- okay. On page 12 of
17 your testimony you say a potentially beneficial feature
18 of the project discharge operations will be the
19 provision of free fish water.

20 Didn't you do some winter run mortality
21 modeling that indicated that the exports of these
22 discharges from Bacon Island would increase winter run
23 mortality?

24 MR. VOGEL: I'm not familiar with what the
25 modeling is that you're referring to. I did not do any

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1 independent modeling beyond those that were performed
2 by Jones & Stokes.

3 MR. JACKSON: Did you review Jones & Stokes
4 modeling?

5 MR. VOGEL: Yes.

6 MR. JACKSON: Does it indicate increase
7 mortality from the releases from Bacon Island for
8 winter run?

9 MR. VOGEL: I'd have to defer to somebody who
10 can better respond --

11 MR. SHAUL: Okay. You're talking in the
12 EIR/EIS?

13 MR. JACKSON: Uh-huh.

14 MR. VOGEL: Whether discharges would lead to
15 mortality?

16 MR. JACKSON: Yes.

17 MR. VOGEL: As I pointed out yesterday that
18 the models do not predict mortality. The models
19 provide a clear description of conditions that may
20 contribute to increased mortality based on the
21 available information that we have.

22 And what the models indicate is that
23 discharges could increase, or affect -- adversely
24 affect those conditions that could increase mortality
25 of chinook salmon.

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1 MR. JACKSON: How much annual incremental
2 additional mortality to winter run is due to the export
3 discharge?

4 MR. VOGEL: It's much smaller than -- than
5 would be due to an additional diversion. And I can't
6 tell you off the top of my head what that is. That's
7 also in the EIR/EIS.

8 MR. JACKSON: The increased mortality, you
9 can't tell me how much?

10 MR. VOGEL: Oh, the actual increase in the
11 mortality?

12 MR. JACKSON: Yeah.

13 MR. VOGEL: I can't tell how much the
14 mortality -- the increase mortality is. All I can tell
15 you is what the increased conditions are.

16 MR. JACKSON: Thank you. Thank you.

17 HEARING OFFICER STUBCHAER: Thank you,
18 Mr. Jackson.

19 Now, Mr. Nomellini, do you want to continue?

20 MR. NOMELLINI: For the record, my name is
21 Dante Nomellini.

22 HEARING OFFICER STUBCHAER: And,
23 Mr. Nomellini, how much time do you estimate,
24 stipulate?

25 MR. NOMELLINI: I think I'm going to use more

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1 than 20 minutes.

2 HEARING OFFICER STUBCHAER: 30?

3 MR. NOMELLINI: Let's try 30 to start with.
4 I'll try to go along -- I don't know what the responses
5 are going to be. I'll try and stay within that time.

6 HEARING OFFICER STUBCHAER: Okay.

7 ----oOo----

8 CROSS-EXAMINATION OF DELTA WETLANDS PROJECT

9 BY CENTRAL DELTA WATER AGENCY

10 BY DANTE NOMELLINI

11 MR. NOMELLINI: All right. My first questions
12 are of Mr. Hultgren. He's been napping for quite a
13 while.

14 Mr. Hultgren?

15 MR. HULTGREN: My name is Ed Hultgren,
16 H-U-L-T-G-R-E-N.

17 MR. NOMELLINI: All right. Mr. Hultgren, do
18 you consider yourself an expert on Delta levees?

19 MR. HULTGREN: Yes.

20 MR. JACKSON: And how long have you been
21 working in the Delta with levees?

22 MR. HULTGREN: On this project, nine years.
23 Some earlier work probably preceded it, but
24 continuously for the last nine years.

25 MR. JACKSON: During the last nine years has

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1 all of your work been as a consultant to Delta
2 Wetlands?

3 MR. HULTGREN: No.

4 MR. JACKSON: What percentage of your work has
5 been with Delta Wetlands in the last nine years?

6 MR. HULTGREN: I don't know the precise
7 number, but it would be less than 10 percent, 15 -- 10
8 percent, I guess.

9 MR. JACKSON: Okay. Now, with regard to your
10 work in the Delta on Delta levees that you performed
11 for Delta Wetlands, was any of that work used by Jones
12 & Stokes in preparation of the EIR?

13 MR. HULTGREN: I believe -- yes.

14 MR. JACKSON: Okay. And I believe you
15 testified -- and I know you did, you worked with the
16 Central Delta Water Agency Seepage Committee?

17 MR. HULTGREN: Yes.

18 MR. JACKSON: We're talking about the same
19 group of people I think when we talk about -- I think
20 they categorize themselves as a technical advisory
21 committee. Let me hand you Central Delta Water
22 Agency 8. And I have a couple extra copies of those
23 for convenience for those at the front table -- and
24 you.

25 MS. BRENNER: Thank you.

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1 MR. NOMELLINI: All right. Now, take a look
2 at the front page of this exhibit. And up at the top
3 it's Central Delta Water Agency 8, again.

4 Do you recognize the individuals listed as
5 members and special consultants at the top of the that
6 letterhead?

7 MR. HULTGREN: Yes.

8 MR. JACKSON: As members of what you call the
9 Seepage Committee?

10 MR. HULTGREN: Yes.

11 MR. JACKSON: All right. Do you consider
12 those people to be experts on Delta levees?

13 MR. HULTGREN: Yes.

14 MR. JACKSON: Now, you're aware of the fact,
15 are you not, that they came up with a certain -- they
16 the technical advisory committee, or Seepage Committee
17 came up with a set of recommendations, are you not?

18 MR. HULTGREN: Yes.

19 MR. JACKSON: Did you agree with those
20 recommendations?

21 MR. HULTGREN: The short answer is I would
22 have to go back and review each one. I don't think I
23 can give a category "yes" or "no".

24 MR. JACKSON: All right. Attached to that
25 exhibit is a table, and I made an overhead out of that,

1 which I hope will work.

2 All right. With regard to this summary and
3 focusing for the time being on the center column under
4 "interpretation," the technical advisory committee
5 under "add" summary of its recommendations. And I'll
6 represent to you, if you look at the text, the text
7 gives more detail of the specific recommendations.

8 The first one is guaranteed remediation
9 funding. Do you agree -- or did you agree with that
10 recommendation?

11 MR. HULTGREN: No.

12 MR. JACKSON: All right. Do you know whether
13 or not that recommendation is provided in any way in
14 the current Delta Wetlands Project?

15 MR. HULTGREN: No, I do not.

16 MR. JACKSON: All right. You do not know if
17 it's included?

18 MR. HULTGREN: I don't know that.

19 MR. JACKSON: Okay.

20 MR. HULTGREN: No.

21 MR. JACKSON: With regard to the second
22 recommendation in that category, funds representation
23 of affected landowners. Did you agree with that
24 recommendation?

25 MR. HULTGREN: No.

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1 MR. JACKSON: Okay. Do you know whether or
2 not that recommendation is included in the Delta
3 Wetlands Project,

4 MR. HULTGREN: No, I do not.

5 MR. JACKSON: All right. The next one,
6 ongoing review of interpretation methodology, did you
7 agree with that recommendation?

8 MR. HULTGREN: Let me go back and read it in
9 the text, I may have agreed with that.

10 MR. JACKSON: Okay. Did you stop my clock?

11 HEARING OFFICER STUBCHAER: Well, you didn't
12 stipulate to the 30 minutes. Yeah, it's stopped.

13 MR. HULTGREN: Is that on page four? I agree
14 with that interpretation -- with that recommendation.

15 MR. JACKSON: And that recommendation
16 incorporated in the Delta Wetlands Project?

17 MR. HULTGREN: Yes.

18 MR. JACKSON: Okay. And how is it
19 incorporated?

20 MR. HULTGREN: How is it -- you want -- when
21 we say it's incorporated in the project, is it a
22 certain document we're looking for?

23 MR. JACKSON: Well, in terms of a mitigation
24 method as I understand this, they were going to go
25 ahead and look at these problems and solutions; the

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1 MR. JACKSON: No. I mean it's -- I think
2 number four on page five.

3 MR. HULTGREN: Okay.

4 MR. JACKSON: To provide a high level of
5 security for adjoining landowners committee believes
6 that the proposed arbitration board should have
7 extensive power to control the filling process,
8 suspending it, seepage, or other problems that have not
9 been corrected, et cetera.

10 (Reading.)

11 MR. HULTGREN: Should I read it all? It would
12 be more complete if we read the entire thing and I
13 could respond to it.

14 MR. JACKSON: All right.

15 Require the implementation of remedial
16 activities including authorizing the expenditure of
17 guaranteed funding, make independent assessments, and
18 interpretation of levee impacts and, if necessary,
19 carry out remedial work.

20 It is recommended that the responsibility for
21 the effective implementation of the project monitoring
22 and mitigation should clearly reside with the Wetlands
23 Team, but that the Board should have the authority, but
24 not the obligation, to make independent evaluations and
25 impose controls on the project activities. And, if

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1 MR. HULTGREN: I would think so.

2 MR. JACKSON: And then not refill it?

3 MR. HULTGREN: Well, if they could refill they
4 would refill again. But if there were some problem
5 outside of the -- causing a problem to a neighbor's
6 island they would not be allowed to fill. But if -- I
7 get the impression you're saying what if Delta Wetlands
8 walked away from the project, I can't appear imagine
9 they would walk away from it if there was water there
10 to sell.

11 MR. JACKSON: Well, it is possible that there
12 wouldn't be a market for water at the time, I mean
13 that's a possibility.

14 MR. HULTGREN: A possibility.

15 MR. JACKSON: And in that case there wouldn't
16 be a motivation to remove the water other than
17 compliance?

18 MR. HULTGREN: It's conceivable, I guess, but
19 doubtful.

20 MR. JACKSON: Does the Delta Wetlands Project
21 include an arbitration board of any kind with regard to
22 the control of filling, or resolution of compliance?

23 MR. HULTGREN: I don't know.

24 MR. JACKSON: All right. Changing the line of
25 questions here, do you agree that a Delta levee becomes

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1 more prone to failure as it becomes more saturated?

2 MR. HULTGREN: Not a "yes" or "no" answer. So
3 expand.

4 MR. JACKSON: You do not agree that a Delta
5 levee becomes more prone to failure as it becomes more
6 saturated?

7 MR. HULTGREN: If we took one of our existing
8 levees, an agricultural island and arbitrarily
9 saturated it, it would become less stable. If we
10 filled both sides of that levee with water it would
11 become more stable. In both cases it becomes
12 saturated.

13 MR. JACKSON: If the water level remained
14 constant?

15 MR. HULTGREN: Yes.

16 MR. JACKSON: If the water level was dropped
17 then the saturated condition would be very similar to
18 the condition that you have with an existing levee but
19 saturated.

20 MR. HULTGREN: Right. But on the Delta
21 Wetlands Project the water level is going to be drawn
22 down on the average about a foot per day. And at that
23 rate you don't have what is called a rapid drawdown
24 condition, enough time for drainage. So you would have
25 the same kind of stability you would have under

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1 agricultural conditions.

2 MR. JACKSON: And what about with regard to
3 the water side slope?

4 MR. HULTGREN: A water side slope is already
5 filling cylindrical saturation from the tidal affects
6 so that is about what's existing today.

7 MR. JACKSON: All right. Let me read from
8 your testimony DW-17 I believe you prepared; is that
9 correct?

10 MR. HULTGREN: Correct.

11 MR. JACKSON: You state at the top of page 18:
12 When the reservoir was at full storage
13 potential outward failures toward the slough reduced
14 the computed factor of safety by about ten percent over
15 existing conditions.

16 (Reading.)

17 Isn't that the water side slope failure
18 problem?

19 MR. HULTGREN: That is not the rapid drawdown
20 issue I was referring to -- I thought you were
21 referring to.

22 MR. JACKSON: Isn't that an additional
23 weakness in the stability that's caused by reason of
24 filling the inside of the levee in the reservoir with
25 water?

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1 MR. HULTGREN: Let me go back to -- section
2 what?

3 MR. NOMELLINI: Page 18, right at the top.

4 MR. HULTGREN: Okay. And repeat the question.

5 MR. NOMELLINI: Well, you stated when the
6 reservoir was at full storage potential outward
7 failures toward the slough reduced the computer factor
8 of safety by about ten percent over existing
9 conditions.

10 (Reading.)

11 MR. HULTGREN: Correct.

12 MR. NOMELLINI: Isn't that a cause by the
13 reservoir that would not otherwise be there?

14 MR. HULTGREN: There's two parts of why that
15 factor of safety goes down. One of it is there's a
16 seepage force, there is a water force going outward
17 that does decrease the stability.

18 MR. NOMELLINI: From the reservoir --

19 MR. HULTGREN: From the reservoir toward the
20 water. And the other impact is these would be very
21 broad levees, and the weight of the fill is a
22 significant part of this. So we're seeing the same
23 thing on our improvements to normal Delta islands when
24 we're broadening the levees and raising. We're also
25 lowering the outward stability, but we need to do that

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1 to increase the risk of -- decrease the risk of
2 overtopping and to buttress the levees.

3 MR. NOMELLINI: All right. You would agree
4 though that this is one example where there is a
5 detrimental impact from the filling of the reservoir on
6 the stability of the levee?

7 MR. HULTGREN: Yes. It has a small impact.

8 MR. NOMELLINI: All right.

9 MR. HULTGREN: I would like to emphasis
10 though, and it says it right here: While this
11 decreases the factor of safety from the current
12 condition to a lower factor of safety, the actual
13 computed factor of safety is still about equal, or
14 greater than the existing conditions in factor safeties
15 under existing conditions, inward toward the island.

16 (Reading.)

17 So the number -- the number, actually, it
18 lowered the factor of safety, but it doesn't lower it
19 to a critical level.

20 MR. NOMELLINI: I don't agree with that, if
21 you're looking for me to answer, but anyway you've
22 answered my question.

23 All right. Now, do you know who made the
24 recommendation that the Delta Wetlands reservoir
25 elevation should be raised to plus six?

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1 MR. HULTGREN: No.

2 MR. NOMELLINI: Do you support that
3 recommendation?

4 MR. HULTGREN: Raise it from --

5 MR. NOMELLINI: From what it was originally
6 which was about mean tide level, probably zero or plus
7 two?

8 MR. HULTGREN: Originally, it was a plus four,
9 I believe, in the original project condition. And now
10 it's at a plus six. It's our judgment that the factor
11 of safety is still within reasonable levels at that --
12 those elevations. So we still believe that the
13 reservoirs will be safe at those heights.

14 MR. NOMELLINI: Do you recommend that the
15 water level be raised to plus six?

16 MR. HULTGREN: Right now that's -- we have
17 looked at it in terms of stability and done our
18 analysis and given our stability analysis. Currently
19 it is not allowed because there was a law passed on how
20 high -- and this is a legal issue, but I believe you
21 could raise the water level to a plus four, I believe.
22 And it's simply -- now, they're going from that request
23 to plus six, but I don't think there's some other
24 impediments to that.

25 MR. NOMELLINI: With dam safety or somebody

1 like that?

2 MR. HULTGREN: Yeah, I believe so.

3 MR. NOMELLINI: What is the planned elevation
4 for the levees around Bacon Island?

5 MR. HULTGREN: I don't know the exact
6 elevations.

7 MR. NOMELLINI: Is it roughly what it is
8 today?

9 MR. HULTGREN: The -- the plan is to be at --
10 plan is to be at least the DWR 192-82 criteria, which I
11 believe is a foot above the 300-year flood.

12 MR. NOMELLINI: Elevation 9.6 something like
13 that?

14 MR. HULTGREN: Those numbers are I think in
15 many cases between nine and ten.

16 MR. NOMELLINI: All right. Now, with regard
17 to the possibility of overtopping the levee due to
18 wind-generated waves on the interior of the reservoir,
19 is it your opinion that if the reservoir was at a
20 plus-six feet the levees could be overtopped by these
21 wind-generated waves?

22 MR. HULTGREN: The design of the shore
23 protection is going to be done during the final design.
24 And that's been stated in all our reports. It's going
25 to be by Moffit Nickel Engineers. And they will assess

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1 the heights and types of erosion protection such that
2 they don't overtop.

3 MR. NOMELLINI: With regard to my question,
4 then, you're saying that the levee will be designed
5 somewhere along the road here so that it will not be
6 overtopped by wind-generated waves; is that what you're
7 saying?

8 MR. HULTGREN: Correct. Correct.

9 MR. NOMELLINI: Okay. You would agree if the
10 top of the levee was a ten and the lower level was six
11 the wind-generated waves could cause overtopping?

12 MR. HULTGREN: That would be dependent upon
13 the slope and type of erosion protection. There are
14 types of erosion protection and water slopes that would
15 not overtop.

16 MR. NOMELLINI: Okay. With regard to the
17 protection of the levee against erosion, exact
18 situation you're talking about in this overtopping
19 condition, what would take the forefront, what
20 physically would you do?

21 MR. HULTGREN: Repeat that please.

22 MR. NOMELLINI: What physically would you do
23 to make this slope such that there would be no wave
24 overtopping other than raising?

25 You said you could add riprap I think you

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1 said, but I'd like you to describe physically what that
2 would mean.

3 MR. HULTGREN: Okay. Our role as geotechnical
4 engineers and I have done some shore protection work,
5 but this project deserves beyond my expertise. And
6 they will want engineers to do that work.

7 From my suggestions with them, I am familiar
8 with some of the types of tools available and a
9 multilayered large riprap slope protection at a three
10 to one, four to one kind of slope starts cutting down
11 on the amount of runoff. And it's to the point, I
12 believe -- I asked them the question was it five to one
13 and a thick slope, you end up with a runoff that's less
14 than the significant wave height. Actually, it cuts
15 down on the wave height.

16 MR. NOMELLINI: Is that anywhere in any of the
17 documentation that we have here?

18 MR. HULTGREN: No. And I think it's because
19 there's -- this isn't designed yet. The wave -- we
20 know we can design the final shore protection. It's
21 just an engineering issue, so we consider it not
22 critical.

23 MR. NOMELLINI: So a condition imposed on the
24 project that would require that the levee be
25 constructed so that there is no overtopping from the

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1 wind-generated waves would be an acceptable condition
2 that the project is planning on dealing with anyway?

3 MR. HULTGREN: Let me qualify that.
4 There's -- it needs to be designed so you don't erode
5 the backside of the island. There's two ways of
6 handling that. You can harden the top of the levee and
7 allow overtopping in some areas that's one alternative.
8 And the other is to design the shore protection such
9 that it doesn't overtop.

10 MR. NOMELLINI: All right. You told me that
11 the project was going to be constructed so there was no
12 overtopping; is that correct?

13 MR. HULTGREN: That may have been a
14 misstatement -- misstatement. It will be designed so
15 that the shore protection works and there are -- one
16 method is if you're going to have a road up there
17 you'll want to have it not be overtopping if it's a
18 critical road. If there is -- but you can allow
19 overtopping if you design such as the water can pass
20 over such not to damage shore protection on the far
21 side.

22 MR. NOMELLINI: So it will be one or the
23 other. You're going to either incorporate provisions
24 that prevents the erosion if it overtops, or you're
25 going to install protective mechanisms that will

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1 prevent that?

2 MR. HULTGREN: That is the plan.

3 MR. NOMELLINI: Okay. So if those two
4 conditions were imposed, one or the other, the project
5 would have no objection? You're going to do it anyway,
6 right?

7 MR. HULTGREN: You're asking permit
8 restrictions?

9 MR. NOMELLINI: Yeah.

10 MR. HULTGREN: I'm not in a position to make
11 judgments on permit restrictions, but I'll tell you
12 from an engineering issue that these are things that
13 we're going to do and it will solve the problem.

14 MR. NOMELLINI: Let's go back to talk a little
15 bit about the --

16 HEARING OFFICER STUBCHAER: Mr. Nomellini,
17 time out for a second, I want to ask you a question for
18 a second.

19 MR. NOMELLINI: Yes.

20 HEARING OFFICER STUBCHAER: Are you talking
21 about any water level, or the 300-year flood level when
22 you're talking about this condition?

23 MR. NOMELLINI: I'm talking about when they
24 fill the reservoir to plus six on the inside, our
25 concern is with wind-generated waves overtopping those

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1 levees and eroding them away.

2 Now, the outside water condition could be, if
3 it happened to occur you know at a flood stage, then
4 the outside water condition might be right around that
5 six, or maybe even a little higher for a few hours at a
6 given time. Generally, it's below. And you would have
7 a problem. We have a lot of concern about creating
8 this wide body of water and then having that unravel on
9 us and affecting all around.

10 HEARING OFFICER STUBCHAER: Thank you. I
11 understand.

12 MR. NOMELLINI: Now, with regard to the
13 seepage problem, I believe your testimony was that you
14 would install interceptor wells on the reservoir
15 island. And that as needed additional interceptor
16 wells would be installed, or existing ones would be
17 deepened and modified until you got to the point that
18 there was no additional raising in the water level.
19 That was part of your testimony the other day. The
20 criteria -- you agree that that was part of your
21 testimony the other day?

22 MR. HULTGREN: I agree.

23 MR. NOMELLINI: Okay. The criteria for the
24 mitigation on adjoining islands is related to a
25 condition that exists over there plus some tolerance.

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1 Is that correct?

2 MR. HULTGREN: Yeah. It's actually typical to
3 represent the range of probably existing conditions.

4 MR. NOMELLINI: Now, you have two standard
5 deviations in your triggering mechanism like you had
6 before. I think that's still there; is that correct?

7 MR. HULTGREN: Correct.

8 MR. NOMELLINI: All right. Would the project
9 be willing to accept the criteria of no raising of the
10 water level at the reservoir island side that would be,
11 I think, a more stringent criteria than the one on the
12 receiving island side?

13 MR. HULTGREN: That wouldn't be practical,
14 because they're already pumping from wells and it's
15 going to have an irregular water surface. So we
16 couldn't.

17 MR. NOMELLINI: You can't measure it?

18 MR. HULTGREN: Right, you can't measure it.

19 MR. NOMELLINI: Now, with regard to these
20 wells and the operation, is it contemplated that they
21 would be have to be operated during the entire life of
22 the project?

23 MR. HULTGREN: Where there's water stored
24 we'll probably be operating wells.

25 MR. NOMELLINI: Do you have any idea what the

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1 cost of operation and maintenance of that system is
2 going to be on an annual basis?

3 MR. HULTGREN: No.

4 MR. NOMELLINI: Is it significant?

5 MR. HULTGREN: Relative to my salary, it's
6 significant.

7 MR. NOMELLINI: I think you can put mine in
8 there, too. All right. That's all I have of
9 Mr. Hultgren. I have a couple other questions.

10 With regard to Jones & Stokes, and I don't
11 know who the expert is but I know we've got a room full
12 of them, the summary pages of the environmental
13 document. And then, of course, the draft itself
14 includes statements related to the speculative nature
15 of the impacts associated with the use of the water
16 that would be generated by this project. And I'm going
17 to read it again. I started to read it the other day,
18 but there's two short statements. One of them says:

19 For the purpose of the EIR/EIS analysis the DW
20 Project is analyzed without consideration of subsequent
21 environmental effects caused by the delivery of
22 purchased DW water, or by the storage of water under a
23 third party's water rights because the identity of the
24 N user of the DW water remains speculative.

25 (Reading.)

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1 I believe I read it correctly. This is the
2 basis for not considering the impact that is stated in
3 here, is it not?

4 MR. BOGDAN: That's correct.

5 MR. NOMELLINI: All right. So this project
6 could go forward, a sale could be made, for example, on
7 the west side of the San Joaquin Valley that
8 contributes to a drainage -- that would contribute to a
9 drainage problem in the San Joaquin River and there
10 would never be any evaluation of that impact associated
11 with this project; is that correct?

12 MR. BOGDAN: No. The EIR points out a little
13 bit later on the effects caused by this type of use.
14 The same paragraph you were reading from, the last
15 sentence it says, "the affects caused by this type of
16 use of the project are unresolved and if proposed by
17 some party in the future would be required to be
18 addressed in a separate final analysis."

19 MR. NOMELLINI: Now, what's the basis for
20 that? I mean what permit would be required? What
21 action would be required by a Government agency that
22 would trigger that environmental review?

23 MR. BOGDAN: Well, that question really should
24 be asked to somebody with authority over those types of
25 actions. I don't know the answer to that.

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1 MR. NOMESELLINI: All right.

2 MR. BOGDAN: This -- this paragraph is put in
3 to clarify to the reader CEQA/NEPA documents are for
4 public disclosure as well as disclosing to the lead
5 agency the environmental impacts. And as I mentioned
6 to Mr. Jackson the CEQA/NEPA requires that you analyze
7 the direct and indirect effects where indirect effects
8 are reasonably foreseeable. And when it's not
9 reasonably foreseeable the lead agency has the duty to
10 at least identify that. And that's what this paragraph
11 said objectively.

12 MR. NOMESELLINI: All right. Well, let me --
13 let me test the reasonable foreseeability with -- just
14 a minute. This water is going to go for M&I use, or
15 agricultural use in all probability, could be used for
16 Delta outflow, too. But the impacts associated with
17 the San Joaquin River, or what have you would probably
18 fall within those two categories, would they not?

19 MR. BOGDAN: There's a number of categories
20 they could fall under.

21 MR. NOMESELLINI: Couldn't we see a range of
22 possible impacts if this Board is going to act without
23 knowing what the possible impact would be if this water
24 was delivered to agricultural on the west side?

25 MR. BOGDAN: Well, again, working with the

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1 lead agency's staff it was determined that anything
2 beyond what was stated there would be speculative. And
3 as I mentioned CEQA/NEPA specifically says to the lead
4 agencies, don't try and use a crystal ball to get at
5 what the impacts are. Disclose to the public what you
6 can look at and disclose to them why you can't look at
7 anything else.

8 As stated here, the geographic scope was the
9 Delta and at the pumps. And anything else was
10 determined to be something that wasn't reasonably
11 foreseeable.

12 MR. NOMELLINI: All right. Let's take another
13 one. "Opportunities may exist to operate the DW
14 Project, conjunctively with the CVP and SWP --

15 MR. BOGDAN: I'm sorry. You're reading from
16 page --

17 MR. NOMELLINI: Page F-6.

18 MR. BOGDAN: F-6 of the EIR/EIS, last
19 paragraph.

20 MR. NOMELLINI: First sentence in that.

21 MR. BOGDAN: Okay.

22 MR. NOMELLINI: "But these arrangements remain
23 speculative and are beyond the scope of the EIR/EIS."

24 Well, at the beginning of this hearing the
25 Bureau of Reclamation announced that they had reached

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1 an agreement with Delta Wetlands that would, in effect,
2 cause a conjunctive operation in these projects that
3 they claim. So it's no longer a speculative issue that
4 those two things are going to occur.

5 MS. BRENNER: I think Mr. Nomellini is asking
6 for a legal conclusion of that meaning of the agreement
7 with the Bureau. I don't think this is the right
8 witness, or of any witness as a proper person to answer
9 the question. It's a legal issue he can raise.

10 HEARING OFFICER STUBCHAER: How would you
11 suggest he raise it and get a legal answer?

12 MS. BRENNER: I think he could ask the
13 question, again, perhaps, but I think he's asking: If
14 there's an agreement that the Delta Wetlands could be
15 operated differently than as described in the EIR as a
16 result of the agreement with the Bureau. And the
17 answer to that is, no, it will not be.

18 MR. NOME LLINI: You don't know that.

19 HEARING OFFICER STUBCHAER: I can understand
20 the question.

21 MS. BRENNER: Yes, I do.

22 MR. NOME LLINI: Well, I don't know that,
23 because --

24 HEARING OFFICER STUBCHAER: Mr. Nomellini, we
25 just had an attorney testify that did not take the

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1 oath.

2 MR. NOMESELLINI: We'll catch up with her later.

3 All right. Anyway, with regard to the
4 environmental documentation, would it still remain in
5 your opinion speculative?

6 MR. BOGDAN: Right.

7 MR. NOMESELLINI: Because you've been told that
8 by the staff?

9 MR. BOGDAN: Correct.

10 MR. NOMESELLINI: Enough with Jones & Stokes. I
11 got a couple more short ones here. Robert Brown -- is
12 it Russell?

13 MS. BRENNER: It is Dr. Brown.

14 MR. NOMESELLINI: Dr. Brown, let's go with
15 doctor.

16 DR. BROWN: That's safer.

17 MR. NOMESELLINI: You did some studies -- and if
18 the Hearing Officer feels I've gone well beyond my
19 time, I'll be willing to wait till the end if you want
20 and then if my questions haven't been answered, I'll
21 come back and ask mine.

22 HEARING OFFICER STUBCHAER: What do you want,
23 ten more minutes?

24 MR. NOMESELLINI: Yeah. I think I can --

25 HEARING OFFICER STUBCHAER: Stipulate?

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1 MR. NOMESELLINI: All right.

2 HEARING OFFICER SHUBCHAER: Okay.

3 MR. NOMESELLINI: Thank you.

4 With regard to scour in the channels in the
5 South Delta, is there any scour at any location in the
6 South Delta under without project conditions?

7 DR. BROWN: There is some degree of scour
8 occurring in all of the channels all of the time.

9 MR. NOMESELLINI: All right. Now, in your
10 modeling it appeared that you tested the average
11 velocity at various cross sections of the channel
12 without looking in any detail at individual segments of
13 that channel.

14 DR. BROWN: That's right.

15 MR. NOMESELLINI: So it's correct that scour
16 could be occurring even though the average velocity
17 shown in the model is less than three feet per second;
18 is that true?

19 DR. BROWN: That is right.

20 MR. NOMESELLINI: Okay. Now, is it not true
21 that if there was a condition causing scour when the
22 average channel velocity was less than three feet per
23 second that the Delta Wetlands Project release could
24 extend the time period of that particular scour, or
25 cause it to occur even though the average flow did not

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1 exceed the three feet per second?

2 DR. BROWN: The findings in the hydrodynamics
3 analysis are simply this: The channels are already
4 experiencing the flows caused by the tidal -- they're
5 experiencing flows which we call tidal flows because of
6 the movement of the water back and forth into the
7 Delta.

8 Those no-project conditions are quite variable
9 and in each of the channels going to whatever the
10 maximum simulated reaction is. So it's true that that
11 is an average channel velocity. And that near the
12 center of the channel, near the surface the velocities
13 are higher.

14 It's also true that in these channels, these
15 are represented by the models, that if there is a
16 narrow section of the channel, the velocities moving to
17 that narrower section would be higher. So that the
18 hydrodynamics model used as an approximate velocity
19 under no-action conditions. And so the finding of
20 whether scouring conditions are significantly increased
21 relies on this relative change in the tidal velocity.

22 So that is the basis now. The direct answer
23 is the Delta Wetlands discharges for export do not
24 cause the tidal flows in the channel between the island
25 discharge points and the pumps to increase above what

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1 they are in the no-action condition.

2 MR. NOMELLINI: I understand that part of it.

3 DR. BROWN: Then --

4 MR. NOMELLINI: I'm trying to deal within the
5 framework of that. And my question was -- and you
6 admitted that scour does occur within the framework of
7 that. And my question to you was: Is it possible that
8 the Delta Wetlands contribution would either extend the
9 period of the scour within the framework of the average
10 velocities, or cause scour when it otherwise would not
11 occur, yet the overall channel velocities remain under
12 three feet per second?

13 DR. BROWN: Okay. Well, although it might
14 happen, our finding was that based on this comparative
15 analysis that there was not likely to be a scouring
16 affect from the overall project operations.

17 MR. NOMELLINI: And that comparison, again,
18 was just based on the fact that the flow rates were
19 within the general magnitude of what would occur
20 under -- without a project condition?

21 DR. BROWN: That's right.

22 MR. NOMELLINI: So the level of analysis
23 didn't drop down to get down into the specifics of my
24 question?

25 DR. BROWN: I think that's right.

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1 chart shows us.

2 DR. KAVANAUGH: Right.

3 MR. NOMESELLINI: Now, am I reading it right?

4 DR. KAVANAUGH: You're reading -- this was the
5 estimate of the amount of DOC generated --

6 MR. NOMESELLINI: Their estimates might be
7 wrong.

8 DR. KAVANAUGH: Okay.

9 MR. NOMESELLINI: But their estimates show that
10 the Wetlands Project increases on the high end, the dry
11 1.3 on the low end, 1.1. Both of those numbers are
12 greater than the one for the existing condition?

13 DR. KAVANAUGH: That's correct. But I wanted
14 to be correct about how you characterize it. You
15 characterize it as a greater load under the conditions.
16 What they did was a simulation and based on Dr. Brown's
17 evaluation of an analysis of the potential release of
18 DOC he presumed these values.

19 At least, that's how I interpret it. So it's
20 not necessarily going to happen. It's what he used in
21 his simulations, which is two different things.

22 MR. NOMESELLINI: Okay. Now, let's get to
23 yours. You project 1.1105 for the no-project, which I
24 guess is basically harmed.

25 DR. KAVANAUGH: Correct.

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1 MR. NOMELLINI: And then you project a high of
2 1.27 for the reservoir project and a low of .4,
3 correct?

4 DR. KAVANAUGH: The column on the right-hand
5 side of the chart includes both the reservoir islands
6 and the habitat islands.

7 MR. NOMELLINI: Is that different than -- than
8 the DEIR/S estimate?

9 DR. KAVANAUGH: Well, again, the way Dr. Brown
10 did it and he used as I said -- as I noted here, dry
11 and wet conditions meaning that the preceding period of
12 time if the reservoir remains wet the amount of DOC
13 that is released is smaller than if there are periods
14 when the reservoir is dry and then refilled.

15 I did not assess that particular factor. What
16 I looked at was the potential quantity of DOC that
17 would be released by the three major sources of DOC in
18 the reservoir, namely, releases from the soils,
19 vegetative biomass, and algae. And I put a range of
20 high to low based on what I felt were reasonable
21 boundary conditions for the various mechanisms of
22 release that occur under those three internal sources
23 that I discussed.

24 MR. NOMELLINI: Okay. And what would be the
25 difference between the high and the low? What

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1 significant factors change that from the high to the
2 low?

3 DR. KAVANAUGH: Perhaps, I can put on another
4 table that has the details of that if you would like to
5 see that.

6 MR. NOMELLINI: Very well, with the Hearing
7 Officer's permission.

8 DR. KAVANAUGH: I'm referring to Table 5-5
9 from my testimony which is DW -- Exhibit DW 13. What I
10 listed in this table, and the details are shown in my
11 testimony, is the low and high values for releases
12 based on these three internal sources that I mentioned.

13 The low value varies depending upon the
14 mechanism. For example, with respect to diffusion from
15 the sediments, it's based on this presumed value of
16 release from the sediments of five milligrams of DOC
17 per squared meter per day. The high value on the other
18 hand is 25.

19 Should I continue?

20 MR. NOMELLINI: I hope he's stopping you and
21 not me.

22 DR. KAVANAUGH: With respect to the vegetative
23 biomass I used a one-percent value of the biomass being
24 converted to DOC versus two percent for the high.
25 This, again, is based on literature values as well as

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1 data presented by Dr. Brown.

2 In the case of algae I have, again, used one
3 and two percent. I made an estimate of the amount of
4 algae that would be produced assuming a .2 milligram
5 per liter phosphate level and reasonable assumptions
6 about reduction of algae. These algae would bloom,
7 they would die. A certain fraction of the algae would
8 be released to the reservoir. So that gives the totals
9 here low, high, and so on.

10 In the case of the Bouldin -- the two habitat
11 islands there's no algae. And the vegetative biomass
12 values, there's ten times more biomass assumed in the
13 habitat islands than there are on the reservoir
14 islands.

15 MR. NOMELLINI: Let's go back to that chart.
16 I'm almost done. Is it -- is it reasonable to conclude
17 that they don't know enough about this project to
18 decide whether to use the high one or the low one as
19 representative of the condition?

20 DR. KAVANAUGH: No, I don't think I would
21 conclude that. What I concluded in my testimony and
22 what I would say here is that the quantitative analysis
23 that I did I felt put a reasonable boundary on what is
24 potentially going to occur. I think you can say that
25 it's very likely that the amount would be somewhere in

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1 Mr. Forkel, are you the witness representing
2 the management of Delta Wetlands?

3 MR. FORKEL: Yes, I am.

4 MR. MOSS: First a question that came up a
5 little bit earlier today, in Mr. Paff's testimony he
6 stated that as a former operations's person for Central
7 Valley Project that he wished he had this, because he
8 could park and store water there.

9 Is it your understanding that you would
10 undertake such activities outside of the water rights
11 you're asking for to be granted by this Board?

12 MR. FORKEL: It's my understanding the project
13 was analyzed as a stand-alone project. It addressed
14 that it could be used in the future for some other
15 coordination, but that at this time is speculative and
16 wasn't included in the Environmental Impact Report.

17 MR. MOSS: Okay. Again, my question is:
18 Would such operations be undertaken outside of the
19 conditions, for instance, in a final operating criteria
20 that would be specified in any permit granted by this
21 Board?

22 MR. FORKEL: You know what I think, that's
23 more of a legal issue as far as what some additional
24 operation would be required to do.

25 MR. MOSS: Okay, going on. Have you read the

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1 dismissal terms of PG&E's January 29th, 1988, protest
2 of your original water rights application?

3 MR. FORKEL: Not recently.

4 MR. MOSS: Why -- why did Delta Wetlands not
5 agree to met these conditions since PG&E basically has
6 a protest and listed conditions that could lead to the
7 withdrawal of its protest?

8 MR. FORKEL: Since I haven't read them
9 recently, I'd have to read them to recall what they
10 were.

11 MR. MOSS: As far as you know did Delta
12 Wetlands ever seriously negotiate an attempted
13 settlement with PG&E on those suggested terms for
14 dismissal of the protest?

15 MR. FORKEL: During my 10 years, or since 1988
16 that I've been on the project, we've had many meetings
17 with PG&E and we've never been able to reach a
18 settlement.

19 MR. MOSS: But you can't address any of the
20 subject matters in terms of what those terms were after
21 all those meetings?

22 MR. FORKEL: (Witness nods.)

23 MR. MOSS: Okay. I'm curious, who are the
24 owners of the project and what is their role in
25 potentially settling the protests -- protest?

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1 MR. FORKEL: The owner of the project is Delta
2 Wetlands Properties.

3 MR. MOSS: And is that a public company?

4 MR. FORKEL: No.

5 MR. MOSS: Well, again, my question is: Who
6 is the equity owner of Delta Wetlands Properties, or
7 owners?

8 MR. FORKEL: Delta --

9 MS. BRENNER: Mr. Chairman, I'd like to state
10 an objection to the whole line of this questioning. I
11 fail to see the relevance as to who owns Delta Wetlands
12 as to this water rights permit hearing.

13 HEARING OFFICER STUBCHAER: Mr. Moss?

14 MR. MOSS: Let me speak to that. About the
15 Delta, PG&E has very significant concerns about
16 potentially very costly impacts to the pipelines and
17 utility facilities on there. We need to have some
18 assurance that the owners of this project stand behind
19 potentially make this whole for those losses.

20 So since no -- nothing was presented in any of
21 the testimony indicating the -- for instance, the
22 capitalization of this project, or anything about its
23 financial ability to do everything they promised, I
24 think we should be able to explore that.

25 MS. BRENNER: I think that's a private-party

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1 dispute.

2 HEARING OFFICER STUBCHAER: Where is the --
3 how are the names of the owners important to that
4 determination?

5 MR. MOSS: Well, so that -- for instance, we
6 can determine whether their net worth, or other assets
7 are sufficient to meet the liabilities that they may
8 generate here at this project.

9 HEARING OFFICER STUBCHAER: Ms. Leidigh, do
10 you have a comment? Is this a legitimate issue for
11 this hearing?

12 MS. LEIDIGH: Well, I -- I think there is some
13 value to it, but I think we should probably let him
14 answer the question. And then we will take into
15 consideration the objections as far as the use of any
16 of that information is concerned. I think that's
17 probably the best way to approach this.

18 MS. BRENNER: Before we move on, can I just
19 make one additional statement in that regard? I'm sure
20 the Board is aware and is considering when you're
21 saying this, Ms. Leidigh, that 23 CCR, Section 777
22 indicates specifically that a dispute concerning
23 applicant's title right to occupy, or land use, or
24 other property, et cetera. The indication is I'm
25 saying that this is private-party dispute has nothing

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1 to do with the water rights hearing that is before you
2 today.

3 MR. NOMESELLINI: We can't --

4 HEARING OFFICER STUBCHAER: Pardon me. The
5 people in the back couldn't hear that. Would you,
6 please, come up to the microphone and repeat what you
7 just said for their benefit.

8 MS. BRENNER: Sure. The objections I'm
9 attempting to raise and state for the record is that
10 the water rights hearing before you today is explicitly
11 limited to things outside of -- let me restate that.

12 23 CCR, Section 777 indicates that the Water
13 Board is not going to be taking into consideration
14 private-party disputes. And I'm characterizing that
15 PG&E's position is just that. And I'd like to just
16 keep that on the record before Mr. Moss continues in
17 this line of questioning.

18 HEARING OFFICER STUBCHAER: Okay.
19 Ms. Leidigh?

20 MS. LEIDIGH: I don't have a copy of that
21 particular section with me, but --

22 MS. BRENNER: Here you go.

23 MS. LEIDIGH: Okay. The Section 777 is a
24 section in which it states that the Board will not try
25 to determine the title to land, or the right to occupy,

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1 or use land, or other property. This is -- this is
2 just in situations where somebody is applying for a
3 water right and there's a question as to whether they
4 own the land where they're going to put the dam. Then
5 we look at whether or not -- we don't -- we don't try
6 to figure out whether or not they own the property.

7 But that doesn't necessarily mean that it's
8 not relevant to know that there is a dispute. What
9 that means is that we aren't going to make that
10 determination, or decide that they have it, or don't
11 have it.

12 Plus, I'm -- now, it does say "protest based
13 solely upon disputed title or right ordinarily will be
14 rejected as not presenting an issue within the Board's
15 jurisdiction provided the Board may temporarily defer
16 action on the application pending judicial examination
17 to --

18 HEARING OFFICER STUBCHAER: We can't hear you,
19 Barbara.

20 MS. LEIDIGH: I'm sorry.

21 HEARING OFFICER STUBCHAER: Repeat that.

22 MS. LEIDIGH: Yeah. "A protest based solely
23 upon such disputed title, or right will ordinarily be
24 rejected as not presenting an issue within the Board's
25 jurisdiction provided that the Board may temporarily

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1 defer action on an application pending judicial
2 determination of applicant's title, or right to occupy,
3 or use the property within the Board's judgment that
4 action is justified."

5 (Reading.)

6 Basically what I'm getting from this section
7 is that it's more interested in the ownership of the
8 lands than it is -- and whether or not you can put a
9 reservoir there.

10 In other words, whether you have the right to
11 access to that land and than what the ownership company
12 is. That seems to me to be a different question. And
13 I think it's relevant as to whether or not the
14 Applicant can pay for mitigation measures. And I think
15 that's not the same question in the question as to
16 whether or not they have access to the land.

17 I haven't heard anybody say that Delta
18 Wetlands doesn't have access to the property where
19 they're going to put the reservoirs. I would still
20 recommend that we allow the witness to answer the
21 question. And then let the parties argue to the Board
22 over how that information should be used. And we could
23 deal with that later.

24 MR. MOSS: I'd like to say one thing, too, if
25 I may?

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1 HEARING OFFICER STUBCHAER: All right,
2 Mr. Moss.

3 MR. MOSS: And that is that PG&E's position in
4 no way asks this Board to determine that land dispute.
5 We acknowledge that there may be a dispute and that's
6 not jurisdictional to the Board.

7 But our issues, if you will, are much broader
8 than that and, certainly, they encompass ones that are
9 specifically provided for in the call of this hearing
10 and in the public interest as a whole, including the
11 economic viability to produce what they promise and to
12 bear the liabilities that they may create in doing so.
13 That -- that has nothing to do with whether we have a
14 land dispute.

15 HEARING OFFICER STUBCHAER: I will allow the
16 question as to ownership to be answered, but I don't
17 want to get into the financial capability and
18 responsibility now.

19 MR. FORKEL: Well, I don't have any problem
20 answering the question. And, Richard, I'm surprised
21 you asked it. I thought you knew Delta Wetlands
22 Properties is a general partnership that's made up of
23 Delta Wetlands, Inc., a California corporation and a
24 group of insurance companies that include Kemper,
25 Zurich, and Lumberman's.

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1 MR. MOSS: Thank you. Now, referring just
2 to -- for purposes of the foundation of this question
3 to the fact that PG&E does claim a land right to
4 prevent the flooding of Bacon Island, and I'm not
5 arguing the substance of that, but my question is this:
6 Would Delta Wetlands go ahead with the other parts of
7 the project if PG&E could legally prevent the
8 intentional flooding of Bacon Island?

9 MR. FORKEL: I don't know.

10 MR. MOSS: So, again, your answer is that you
11 cannot -- you cannot say whether the project is viable
12 without -- if Bacon Island cannot be used as a
13 reservoir site?

14 MR. FORKEL: Yeah.

15 MR. MOSS: Well --

16 MR. FORKEL: I would have to look at that. I
17 think the economic viability of the project would be
18 very -- it would be challenged with only having one
19 reservoir, but I would have to -- I would have to look
20 at it a little bit closer.

21 MR. MOSS: You are aware of our recorded land
22 rights on Bacon Island?

23 MR. FORKEL: Yes.

24 MR. MOSS: Are you aware that the only gas
25 transmission line to deliver natural gas to and from

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1 McDonald Island's underground storage gas field which
2 then flows out to PG&E's several million natural gas
3 customers is situated across Bacon Island? Are you
4 aware of that?

5 MR. FORKEL: Which line?

6 MR. MOSS: Lines 57A and B, but in particular
7 57B.

8 MR. FORKEL: Yes.

9 MR. MOSS: Is Delta Wetlands aware that a
10 failure of the gas transmission line on Bacon Island
11 could potentially result in the significant loss of
12 PG&E's gas load in Northern and Central California,
13 significant being a quarter to a third?

14 MR. FORKEL: You know we've been trying to
15 collect some of that data. And we have some
16 consultants here that I think could address that a
17 little better than I could.

18 MR. MOSS: Well, that figure is given in the
19 Draft EIR, so I'm just asking whether you agree with
20 what is stated there.

21 MR. FORKEL: If -- if it's in the EIR, I'd be
22 happy to look at it and see if it's -- I just don't
23 recall it being in there right now.

24 MR. MOSS: Do you have any idea of the gravity
25 of that situation?

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1 DR. EGAN: Excuse me, Mr. Stubchaer --

2 THE COURT REPORTER: Excuse me, your name?

3 MR. EGAN: Geoff Egan, E-G-A-N. I think the
4 answer is we don't know, because we don't have the
5 documentation. We received just, I believe, yesterday
6 the inflow and outflow rates from McDonald Island. And
7 I haven't reviewed those in any detail, but as to the
8 criticality of this line, we do not have sufficient
9 information to check the statement that Mr. Moss just
10 made.

11 HEARING OFFICER STUBCHAER: Thank you for that
12 information. And I think, please, direct your answers
13 to Mr. Moss.

14 MR. MOSS: Thank you. Has Delta Wetlands
15 offered to do anything to relocate, or otherwise secure
16 the reliability use, operation, and maintenance of
17 these lines when Bacon Island is flooded, potentially?

18 MR. FORKEL: Well, as I said before, we've had
19 numerous meeting with PG&E, but we've never come to a
20 resolution.

21 MR. MOSS: Okay. As -- as a matter though as
22 things stand today, if this reservoir is constructed on
23 Bacon Island is Delta Wetlands prepared and able to
24 bear any liability that should arise from impacts to
25 the utility facilities?

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1 MR. FORKEL: Could you repeat that question?

2 MR. MOSS: If the water storage reservoir is
3 constructed on Bacon Island, is Delta Wetlands prepared
4 and able to bear any liabilities that may result from
5 impacts to the utility facilities?

6 MR. FORKEL: You know what, that sounds like a
7 legal question that goes back to the property rights.

8 MR. MOSS: Actually, this is a non -- from
9 just -- just my response to you is, Mr. Stubchaer, this
10 is completely a non-property rights question. It
11 assumes, if anything, they have the right to flood it,
12 but they impact our facilities.

13 MS. BRENNER: Mr. Chairman, Mr. Moss is
14 continuing to go to what will the project do, what will
15 Delta Wetlands do under these certain circumstances.
16 And he seems to be referencing back to previous
17 negotiations that Delta Wetlands and PG&E have had, et
18 cetera.

19 And I just don't see that this line of
20 questioning is relevant. I don't think it's at all to
21 the water rights hearing today. And it's creating a
22 speculative question and answer type of scenario. And
23 I don't think it's proper.

24 HEARING OFFICER STUBCHAER: I will sustain the
25 objection.

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1 MR. MOSS: Okay. The Draft EIR/EIS finds that
2 the inundation of the electric transmission lines on
3 the islands would be a significant impact to be
4 mitigated by the relocation of those lines. Is that
5 correct?

6 MR. FORKEL: Yes.

7 MR. MOSS: And is Delta Wetlands prepared to
8 undertake that -- those -- the relocation of those
9 lines at their expense?

10 MR. FORKEL: Yes.

11 MR. MOSS: Assuming that the reservoir was
12 filled on Bacon Island and there was an emergency, or
13 other maintenance need that required Delta Wetlands to
14 quickly dump so PG&E could access the gas pipelines,
15 would Delta Wetlands be prepared to do this without
16 cost to PG&E?

17 MR. FORKEL: As I said before, we've had
18 numerous meetings talking about this. And we've never
19 reached a negotiations agreement. I don't think it's
20 been established at this time whether or not it's our
21 responsibility to do that.

22 MR. MOSS: Again --

23 HEARING OFFICER STUBCHAER: Okay. Mr. Moss --

24 MS. BRENNER: I'd just like to say that's the
25 same line of questioning that the objection was just

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1 sustained on.

2 HEARING OFFICER STUBCHAER: Well, it's a
3 little different. In my opinion, it's a physical
4 measure of the water as opposed to the financial
5 responsibility, but Mr. Moss --

6 MR. MOSS: Exactly. Basically, they're saying
7 they have a right to flood it. And what we're saying
8 is if an emergency happened that required us to
9 basically access the line by removing the water would
10 you be prepared to do so?

11 HEARING OFFICER STUBCHAER: Okay. Objection
12 is overruled.

13 MR. FORKEL: I think the issue is: Can the
14 project draw the water down so you can repair your
15 pipeline? The project -- the water -- the islands can
16 be drawn down to do this. It is a function of who
17 would pay for the loss of the water and what other
18 alternatives are available to PG&E to address the
19 repairs of the pipe. You may not need to drop the --
20 drop the reservoir to make your repairs.

21 MR. MOSS: For instance, what would happen if
22 the reservoir had to be -- you would have to draw it
23 down during the months of January through June where
24 you otherwise would be prohibited from making releases?

25 MR. FORKEL: And why would we be prohibited,

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1 again?

2 MR. MOSS: Well, in the terms that you
3 outlined of the final operating criteria your normal
4 release months do not include January through June?

5 MR. FORKEL: That's incorrect.

6 MR. MOSS: Well, in general, there are --
7 there are times when you are prohibited from making
8 releases. My question is simply: If you had to in an
9 emergency --

10 MR. FORKEL: No, there isn't. I mean I think
11 you're wrong. The final operations criteria has no
12 restrictions on discharges from Bacon Island.

13 MR. MOSS: Okay.

14 MR. FORKEL: The function would be whether
15 there would be a demand for the water.

16 MR. MOSS: All right. In the alternative, if
17 PG&E were working on the line during the time when the
18 island was drawn down and you wanted to go ahead and
19 store water, if we asked you to forego storage at that
20 point would you be willing to do that?

21 MR. FORKEL: We -- we keep coming back to the
22 same point. We've had these discussions before and
23 they were fruitless. I mean I feel like we're sitting
24 here negotiating what we can or cannot do. We met and
25 we couldn't arrive at any sort of agreement at the

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1 time. So this seems like a pointless line of
2 questioning.

3 MR. MOSS: Mr. Stubchaer, again, I'm not going
4 to pursue it given the response, but I'd just ask the
5 Board to consider, again, that they, Delta Wetlands
6 asked PG&E to bear certain risks. And we're trying to
7 test under what conditions those risks would fall
8 greater or less on PG&E. And that's an area where the
9 Board specifically asked for testimony on utility
10 facilities --

11 MS. BRENNER: Mr. Stubchaer, Mr. Moss could
12 direct some questions to Mr. Egan who would be able to
13 answer specific kinds of questions as to risks and how
14 they would be addressed. Maybe that would be a more
15 profitable question.

16 HEARING OFFICER STUBCHAER: As I say those
17 are --

18 MR. MOSS: Mr. Stubchaer, far be it for me to
19 defend PG&E --

20 MEMBER DEL PIERO: Would you please mark this
21 in the record, I'd like to read it again two or three
22 times.

23 MR. MOSS: It seems to me that this is a
24 public interest question. And that the point is that
25 to issue a water right permit may very well not be in

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1 the public's interest, because of both the possible
2 power outages and the damage that could be done by
3 using this land by giving the water rights to this
4 land. So it would seem to me that this is absolutely
5 something that all of the public in California ought to
6 know about.

7 MS. BRENNER: Mr. Stubchaer, we're just asking
8 that the questions be directed toward just that: What
9 is the risk involved here?

10 HEARING OFFICER STUBCHAER: All right, what
11 question is pending? I know what answer we got, but
12 what was the question?

13 MR. MOSS: The question, again -- because I'm
14 not asking it was: If PG&E was working at a time when
15 the island was drawn down and we needed more time and
16 they wanted to go ahead and store, would it be at their
17 risk that they couldn't store? I think --

18 HEARING OFFICER STUBCHAER: All right.
19 Please, answer the question.

20 MR. FORKEL: I don't see any reason why you
21 could not accommodate any work that was going on. I
22 think those arrangements could be made. I'm surprised
23 they haven't made them yet. We've been meeting a lot
24 and we should have agreements like that.

25 MR. MOSS: The last question -- last question

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1 for Mr. Forkel is: Has Delta Wetlands -- did Delta
2 Wetlands give any consideration to reclaiming Mildred
3 Island as a smaller scale test of the island reservoir
4 concept?

5 MR. FORKEL: No.

6 MR. MOSS: I have a few questions for,
7 Mr. Hultgren first.

8 Does the Delta Wetlands Project represent the
9 best most protective regime presently in use, or
10 planned in the Delta?

11 MR. HULTGREN: I don't know.

12 MR. MOSS: And given your experience in -- as
13 an expert in Delta levees, you have no opinion on that?

14 MR. HULTGREN: On whether that is a good
15 criteria, or is the best?

16 MR. MOSS: No. Whether that's the best
17 criteria used among all Delta levees?

18 MR. HULTGREN: I could imagine there are
19 districts going beyond that. It is a criteria that the
20 DWR established and we reviewed and found it to be
21 very, very sound and pragmatic.

22 MR. MOSS: As far as you know does the
23 Department of Water Resources advocate the Bulletin
24 192-82 standards for Delta levee long-term standing
25 reservoir?

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1 MR. HULTGREN: It's intended for agricultural
2 islands, the criteria we're using.

3 MR. MOSS: Not for a water storage reservoir?

4 MR. HULTGREN: Correct. But we're using that
5 criteria for when it's drawn down. We do not need to
6 have all that dirt there, or spend that money when
7 we're full of water. This is for when it's drawn down
8 we want to be as stable, or more stable than that
9 criteria.

10 So we're using that as a -- a benchmark for
11 purposes of saying how safe we're going to be. And
12 there are more critical cases where we are -- today
13 we're drawn down. This is the big risk today. These
14 islands and our neighbors have the same problem, we
15 continue to subside. Right now we're losing three
16 inches of ground a year. We're getting deeper and
17 deeper.

18 This project is going to change that. This
19 project is going to stop subsidence so levees don't
20 keep getting taller and taller. It's going to put in
21 the standard -- it's not a standard, it's a
22 guideline -- the guidelines that DWR developed. And
23 that guidelines is going to be harder to meet 20 years
24 from now when you have five more feet of depth in those
25 islands. So we believe that doing this project today,

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1 stopping the subsidence and making the levees this
2 strong is a very, very positive thing for you who cross
3 this island.

4 MR. MOSS: Are you familiar with the recently
5 built levees in District 2300?

6 MR. HULTGREN: No.

7 MR. MOSS: As far as you know would these
8 levees when they're storing water be considered down by
9 the Division of Dam Safety?

10 MR. HULTGREN: This is a legal question. I
11 believe that at plus four they are not dams. Above
12 plus four is uncertain.

13 MR. MOSS: To the best of your knowledge has
14 anyone tried before to build a similar water storage
15 reservoir in the Delta, or anywhere else representing
16 similar conditions?

17 MR. HULTGREN: Well, what similar conditions
18 are we talking about? I mean we store water all the
19 time.

20 MR. MOSS: Similar conditions. In other
21 words, I'm asking both specifically in this Delta but
22 if there were some other place -- you could reference
23 some other project I'd like to know about it.

24 MR. HULTGREN: Where we're storing water on
25 peat soils, is that what you're saying?

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1 MR. MOSS: Yes.

2 MR. HULTGREN: I don't know about Clifton
3 Court. I don't know the details about it, but it's in
4 the South Delta. I don't know the answer.

5 I know DWR was looking at doing a similar
6 thing on Victoria Island -- not similar in that it
7 would be a reservoir, but it would enlarging the
8 forebay and that's got peat soil. And that would be a
9 similar type thing. I know they were thinking about
10 putting in setback levees in which -- and rebuilding
11 levees to retain water. So I think those concepts are
12 somewhat similar.

13 MR. MOSS: Lastly, how long would it take to
14 pump out a filled vacant island if there were an
15 emergency that required the water to be released as
16 quickly as possible?

17 MR. HULTGREN: I don't know the answer as to
18 what the maximum pumping rate is.

19 MR. MOSS: Does anyone on the panel?

20 MR. FORKEL: Yeah the maximum pumping rate is
21 6,000 csf. That's combined for both islands. The
22 individual islands could start at a maximum of 4,000
23 and they would take about three weeks to empty.

24 MR. MOSS: Thank you. I have a few questions
25 for Ms. Dryer?

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1 MR. HULTGREN: It's Dour.

2 MR. MOSS: Ms. Dour, my apologies. Are you
3 the principle authority of the Draft DIR?

4 MS. DOUR: Yes. I am.

5 MR. MOSS: Who, if any, were the consultants
6 that helped you on this section?

7 MS. DOUR: None, just staff. I should preface
8 that with the fact that much of what's in our Section
9 3E of the Draft EIR/EIS came from my conversations with
10 PG&E staff over the last four years.

11 MR. MOSS: I understand that. The document
12 states that analytical impact mechanisms were employed
13 to determine whether Delta Wetlands Project's impacts
14 to utility facilities were significant. Is that
15 correct?

16 MS. DOUR: Yes, that's the intent of the
17 section.

18 MR. MOSS: You concluded that the partial
19 inundation of power lines was a significant impact that
20 would have to be mitigated. Is that correct?

21 MS. DOUR: Yes, that's true.

22 MR. MOSS: But the impact to natural gas
23 transmission lines was not significant?

24 MS. DOUR: Yes, that's true.

25 MR. MOSS: And could you briefly tell us what

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1 supported that last conclusion?

2 MS. DOUR: Sure. The effect on the gas line
3 across Bacon Island, the potential impact to it was
4 based in part on kind of a calculated risk. And this
5 risk is dependent on both -- excuse me.

6 It's dependent on the likelihood of a
7 situation occurring. The impact is -- actually, impact
8 E4 in the document, "increase in PG&E response time to
9 repair a gas line failure." And this is based on a
10 risk assessment of what is the likelihood of an event
11 to occur on the island during the reservoir conditions,
12 ability of PG&E to do their repair -- repair work under
13 the project conditions including the ability for the
14 project to be -- the water to be drawn.

15 MR. MOSS: The Draft EIR seems to acknowledge
16 any repairs to the transmission lines when the island
17 is flooded is problematic. Would you agree with that?

18 MS. DOUR: Yes, based on my conversations with
19 PG&E staff.

20 MR. MOSS: But you conclude that since the
21 island may be dry up to 50 percent of the time, this
22 would offer an opportunity to do repairs. Is that
23 correct?

24 MS. DOUR: That's partially correct. It's not
25 just that the island would be dry quite often, but also

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1 the relative risk of a rupture occurring on that line.
2 And that was based on my conversations with PG&E staff
3 about how often ruptures occur in the entire Delta, and
4 what the potential causes are.

5 The primary cause being over half of the --
6 when I talked to someone at PG&E, I believe it was
7 Chris Webber, over half of the ruptures caused in the
8 Delta over half of the time were caused primarily by
9 agricultural disruptions, agricultural equipment
10 hitting lines.

11 HEARING OFFICER STUBCHAER: How much more time
12 do you need?

13 MR. MOSS: Probably another 20 minutes.

14 HEARING OFFICER STUBCHAER: Okay. When it's a
15 good time for you, we'll take the afternoon recess.

16 MR. MOSS: Thank you. This morning
17 Mr. Forkel stated that even at drawdown times at least
18 one foot of water would be left on Bacon Island at all
19 times. Is that correct?

20 MR. FORKEL: What I said is that during the
21 winter, during non-storage periods the islands would be
22 managed for shallow water. And the water would range
23 in depth from zero to about two feet. So there would
24 be some water out there, but there would be some areas
25 that certainly would be dry. It would be quite similar

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1 to the operations that are out there now with
2 agricultural irrigation.

3 MR. MOSS: In light of that, I would -- my
4 question is: Should not the Draft EIR be changed to
5 reflect the fact that we're talking about the
6 likelihood that repairs would have to be made at any
7 time with some water rather than being dry?

8 MS. DOUR: I think the conclusions in the EIR
9 are sound based on my discussions over the lifetime of
10 the project, and the reduction of the risks from
11 agricultural uses.

12 MR. MOSS: Okay. Are you aware that the
13 fourth bulletin point on page 3E8, that contributes the
14 use of gas storage on McDonald's Island only to, quote,
15 peak winter periods, unquote, is basically obsolete and
16 does not store gas --

17 MS. DOUR: I'm sorry, could you reference that
18 again?

19 MR. MOSS: On page 3E8, it's not numbered but
20 it's the fourth bulletin point.

21 MS. DOUR: I see.

22 MR. MOSS: It basically attributes the use of
23 gas storage on McDonald Island only for, quote, peak
24 winter periods. And my question is: That is not this
25 obsolete today in light of the Gas Accord which

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1 requires PG&E basically to operate the reservoir
2 significantly differently and to store gas for itself
3 and third parties on an in and out basis.

4 MS. DOUR: I think this is a question for
5 yourself to answer. But this is based on the
6 information in the document, again, this was dated
7 September of '95. So it's based on the information I
8 received then.

9 MR. MOSS: And our witness will address this
10 issue. I just suggest that the document needs
11 updating.

12 HEARING OFFICER STUBCHAER: Is this a good
13 time for the break, or are you going to move on?

14 MR. MOSS: I'm going to finish and then before
15 I get to Dr. Egan it will be a good time for the break.

16 HEARING OFFICER STUBCHAER: Okay. Fine.

17 MR. MOSS: You mention in there, and I assume
18 PG&E -- a new gas line would have to be pulled
19 underground under -- under -- under the flooded area.
20 Is that correct?

21 MS. DOUR: That was based on my conversations
22 with PG&E staff.

23 MR. MOSS: Did you make any attempt to verify
24 the practicality of doing this?

25 MS. DOUR: Since -- not at the time. It was

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1 based on discussions with them at the time, but since
2 we've published the draft I have looked at the comment
3 letter that PG&E submitted -- or the letter you
4 submitted for this testimony. And you said that that
5 is not feasible.

6 MR. MOSS: Thank you.

7 HEARING OFFICER STUBCHAER: Okay. We'll take
8 a 12-minute recess.

9 (Recess taken from 3:02 p.m. to 3:14 p.m.)

10 HEARING OFFICER STUBCHAER: Okay. We're back
11 in session. Mr. Moss, you wish to continue?

12 MR. MOSS: Thank you, Mr. Stubchaer. I have
13 now some concluding questions for Dr. Egan.

14 Dr. Egan, have you visited Bacon Island and
15 looked for the Line 57B right-of-way?

16 DR. EGAN: No, I have not.

17 MR. MOSS: In your testimony you claim that
18 the conversion of Bacon Island farmland to a reservoir
19 substantially reduces the risk of third party, or i.e.,
20 farming damage. Are -- is that correct?

21 DR. EGAN: That's what I say in my testimony,
22 yes.

23 MR. MOSS: Are you aware that most of the
24 right-of-way for Line 57B on Bacon Island is under a
25 paved road?

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1 DR. EGAN: I think I was aware of that, yes.

2 MR. MOSS: Would that -- would that change
3 your judgment relative to risks from farming?

4 DR. EGAN: It's not just from farming,
5 Mr. Moss. I think I pointed out that it is any
6 activity in which you're using any form of equipment
7 particularly things like backhoes, digging equipment,
8 digging machinery for creating ditches, or whatever
9 they do in that environment. And the really important
10 thing you're going from an exposed situation for that
11 equipment to one where the line is not exposed to that
12 type of equipment.

13 MR. MOSS: Again, if you would go out there I
14 would just offer to say that you would see it's fairly
15 well-marked, my comment to you.

16 Please, describe the construction and repair
17 methods for servicing a high pressure gas pipeline,
18 say, to repair a corrosion pit in a flooded and in a
19 non-flooded condition.

20 DR. EGAN: Could you define for me a couple of
21 things? Is the corrosion pit leaking or non-leaking?

22 MR. MOSS: Let's assume it's non-leaking.

23 DR. EGAN: Well, basically if it's non-leaking
24 and you -- you --

25 MR. MOSS: Well, we do not know that. I mean

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1 we have to investigate it.

2 DR. EGAN: Let me start again, then.

3 MEMBER DEL PIERO: What's the question?

4 DR. EGAN: I'm confused, Mr. Chairman.

5 HEARING OFFICER STUBCHAER: We don't

6 understand the question either.

7 DR. EGAN: Thank you.

8 MR. MOSS: My question basically is then I'm
9 taking a type of repair that is something that might --
10 may happen to one of these lines. And I'm asking him
11 to describe what the procedures would be in the dry
12 situation, and what the procedures might be in a wet
13 situation.

14 HEARING OFFICER STUBCHAER: All right.

15 DR. EGAN: And was my understanding that this
16 is a corrosion pit and is not leaking, so that the most
17 sensible thing to do -- and I assume that the corrosion
18 pit has been discovered by an internal pigging system.
19 We have an internal pigging system that measure wall
20 loss. So you're seeing it through the pipe and drive
21 it with the gas and it made it a wall loss.

22 And I'm assuming that you've done this and
23 that the wall loss indications say that the wall is
24 below the minimum thickness. And in this pipe, which
25 operates at 60 percent of the specified minimum use

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1 stress, that's a fairly big pit. Most pipelines
2 operate at 72 percent for the specified minimum use
3 stress. So now we're at a situation where I can
4 describe the procedures.

5 The pit also has a location device so you know
6 where it is, plus or minus a few feet. And what you
7 would do in dry conditions is you would excavate it at
8 that location. You would locally check the wall
9 thickness with an ultrasonic testing device, and if
10 necessary make the repair either by encirclement with
11 clamps, or weld it on repair, or just a build-up repair
12 and then re-coat it and cover it back up again.

13 All of that activity can be done in a wet
14 situation simply by working from a barge using sheet
15 piling and getting down to a location that you've
16 evacuated the water and the steps are basically the
17 same. We have a lot of pipelines in this country and
18 this State that are in these conditions that we're
19 talking about.

20 HEARING OFFICER STUBCHAER: Excuse me, how do
21 you put sheet piling around the pipe?

22 DR. EGAN: You don't. You put it around the
23 sides. And you can seal off the ends. We can actually
24 make a dry habitat underwater if necessary. But we
25 wouldn't propose to do that here, because the water is

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1 not deep enough. But if you're in a hundred feet of
2 water you can build a dry habitat around the pipe.

3 So what we do is sheet pile down the sides,
4 you seal the ends, put a couple big submersible pumps
5 and pipe the water out and do the work there. So it's
6 possible to do that.

7 I think the point I made in my testimony was
8 that you need to be prepared to do it if you consider
9 that to be a likely scenario. And I think -- I
10 think -- you know, I would point out that we're not
11 playing chicken little here. The sky is not falling.
12 We have reviewed the past maintenance records of PG&E
13 for this section of line. And my colleague
14 Mr. Lindsay has looked at what has been done in the
15 past. And maybe I'll have him describe that, because
16 then you can decide how likely is this event that
17 you're questioning me about going to be.

18 MR. LINDSAY: Phil Lindsay, L-I-N-D-S-A-Y.

19 MR. MOSS: Excuse me, Mr. --

20 HEARING OFFICER STUBCHAER: Mr. Moss?

21 MR. MOSS: Has he been sworn?

22 MR. LINDSAY: I was sworn yesterday morning,
23 sir.

24 MS. LEIDIGH: Yes.

25 MR. LINDSAY: I've reviewed information

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1 provided to us by PG&E. And basically the type of
2 analysis that they have done with respect to the
3 aquatic protection system involves bimonthly
4 measurements of the rectifier voltage and current
5 outputs; they have done bimonthly pipe to soil
6 potential measurements.

7 And my review of this information shows that
8 the pipe, in fact, is in good condition. And the
9 conclusions on the various summary sheets is that PG&E
10 has essentially said the same thing. So looking at the
11 data to date it would appear that the line is in good
12 shape.

13 I might add that this line is quite robust.
14 It consists of a thick wall. It consists of an organic
15 type of coating followed by about three-quarters of an
16 inch of cement. So this is a very robust pipeline in
17 terms of corrosion resistance.

18 MR. MOSS: My next question: Although PG&E
19 may be able to use various remote methods such as
20 pigging as you've described to locate potential
21 pipeline problems, isn't it necessary basically to
22 expose the pipeline in a dry manner to do any repairs?

23 DR. EGAN: The answer to that is, no. And I
24 think I explained how you would do it under shallow
25 water. In fact, shallow water is not that different

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1 then what's on this island under agricultural
2 conditions certainly in the winter. And it's not that
3 different from swamps.

4 So my answer would be, no, it is not necessary
5 to expose this pipe in dry conditions to do maintenance
6 that I have described. In fact, that hasn't been done
7 for 14 years at Mildred Island.

8 MR. MOSS: Can you compare the cost of the two
9 methods that you described, the dry method in working
10 underwater?

11 DR. EGAN: There is a cost differential, of
12 course. You need to mobilize a work barge. You need
13 to make arrangements to have that done. It is,
14 certainly, more expensive to do it underwater than on
15 dry land, but we don't have dry land in the first case
16 anyway.

17 I can't as I sit here give you numbers, but I
18 would expect that you might -- you might find that it
19 was one and a half to two times more expensive in
20 shallow water than it would be on dry land. And on dry
21 land these things may be done in a few days. You may
22 be talking 50 to \$100,000.

23 MR. MOSS: How would you -- would you get this
24 work barge onto the island?

25 DR. EGAN: Well, I thought hard and long about

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1 that, and I haven't checked out barges in this area,
2 but one of the techniques we use is simply bring a main
3 barge out, lift the work barge across with a crane and
4 do the work. It is not impossible to do this, you just
5 need to be prepared if you think, "if you think" there
6 is a real and likely scenario. And as Mr. Lindsay
7 pointed out, all of the stuff we reviewed indicates
8 this line is in good condition, or as PG&E's notes say
9 "excellent condition." And it is not degrading by this
10 mechanism of corrosion that would lead to this.

11 MR. MOSS: Are you aware of the unbundling of
12 services in the gas industry and what impacts this has
13 had in the storage -- operation of gas storage
14 facilities in California?

15 DR. EGAN: I understand what free enterprise
16 means, yes.

17 MR. MOSS: Well, that --I don't know if that's
18 an answer.

19 HEARING OFFICER STUBCHAER: Well, I took it as
20 a "yes."

21 MR. MOSS: Are you aware that PG&E's
22 operational needs are not just for the capacity storage
23 of McDonald Island?

24 DR. EGAN: I understand now you have another
25 state of customers that comprise other gas owners, and

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1 other people that may borrow, or utilize your gas
2 facilities for short periods of time that are not
3 necessarily home users, or commercial consumers.

4 MR. MOSS: And you are aware that Line 57B is
5 PG&E's only connection to the Turner Cut in McDonald
6 Island's storage facilities?

7 DR. EGAN: I am aware of that. What I
8 couldn't figure out was how the new Line 401
9 structured, or plays into delivering gas to some of the
10 bigger demand areas like the San Francisco Bay area,
11 but I'm aware of that, yes.

12 MR. MOSS: And when our witness is here you
13 can ask him that question.

14 DR. EGAN: I'm sure we will.

15 MR. MOSS: You mentioned in your testimony
16 that the buttressing of the levees -- and we heard a
17 good deal of discussion about that today in what I
18 would consider the massive levees that were spoken of
19 by Mr. Hultgren, that this could have an impact on the
20 high-pressure gas pipelines. Is that correct?

21 DR. EGAN: I think that's what I said in my
22 testimony, yes. And that was derived at by reviewing
23 the nature of what would be done to the levees to bring
24 them up to State standards. And also reviewing some
25 information provided by PG&E regarding the replacement

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1 of an elbow on McDonald Island. And I couldn't link
2 these together, but I suspect, and maybe you can tell
3 me, I suspect that this was a result of the pigging
4 operations on which you found a geometric anomaly on
5 the pipe. And, yes, I am aware of conditions at the
6 levees.

7 MR. MOSS: And you say that in -- certain
8 necessary steps would have to be taken to alleviate
9 these additional loads. What steps are these?

10 DR. EGAN: I think the steps have already been
11 taken, Mr. Moss. I believe that PG&E has a -- a --
12 some form of levee settlement, or displacement system
13 already in place on both levees at the location where
14 these lines cross Bacon Island. And that was in recent
15 documentation that we received. And that activity was
16 a result of the -- of the elbow replacement on McDonald
17 Island.

18 MR. MOSS: And if a similar elbow-type
19 replacement, or other type activities would have to be
20 done because of Delta Wetlands's work on the levees, is
21 Delta Wetlands prepared to undertake that at their
22 expense?

23 DR. EGAN: I would have thought seeing it's a
24 PG&E line that it would be a PG&E responsibility.
25 That's not really my area so I defer to somebody else.

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1 MR. MOSS: Mr. Forkel?

2 MR. FORKEL: I think if it's a direct result
3 of Delta Wetlands's operations, yes, we would be
4 responsible. I also think that there's a great deal of
5 work going on right now at this time on all the levees.
6 And you are typically faced with these issues of
7 loading the levees as they're being rehabilitated. So
8 it can be a function of why the work had to be done,
9 but if it was directly resulted from Delta Wetlands's
10 operations, sure.

11 MR. MOSS: Dr. Egan, you mentioned that 50
12 percent of pipeline leaks are the result of third-party
13 damage. Is this statistic really for incidents, in
14 quotes, not just for leaks?

15 DR. EGAN: That 50 percent I think was just
16 for last year, and it's for incidents.

17 MR. MOSS: Right, not just for leaks?

18 DR. EGAN: That's correct.

19 MR. MOSS: And roughly speaking what is the
20 ratio of items requiring repair to gas transmission
21 pipelines to those resulting in an incident?

22 DR. EGAN: I don't have any data that I could
23 sensibly answer that for this gas pipeline.

24 MR. MOSS: But in general would you say that,
25 certainly, there are a lot more repairs than incidents

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1 just that happened, that are discovered --

2 DR. EGAN: But it's: How long is a piece of
3 string? I can't answer that unless you tell me the age
4 of the line, the steel of the line, the product that
5 you're carrying, and so on. Most gas line operators
6 will have a line management plan. We've asked for
7 this. We haven't seen it. And in that would be the
8 history of what's been done to the line, how often
9 repairs have been made, and what they were made for.
10 It's a normal practice to do that.

11 MR. MOSS: And what about the other 50 percent
12 that are not the result of third-party damage, what
13 other failure mechanisms exist on that?

14 DR. EGAN: Well, they're listed in Table 1 of
15 Delta Wetlands's Exhibit 18 for the year 1/1/96 to
16 12/31/96. And let me just read down the list:

17 Internal corrosion, external corrosion, damage
18 from outside. And then it says, Outside forces:
19 Construction, material, defect, other.

20 MR. MOSS: Okay. You say that to repair the
21 Bacon Island line PG&E could shore the pipe and pump
22 out the water. Given the conditions on the flooded
23 island and the peat soil and not really any -- not
24 really any solid ground, would this be quite a
25 difficult and costly procedure with, again, significant

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1 problems and equipment access and not having a solid
2 ground for a working platform?

3 DR. EGAN: No, and, no, if you're prepared to
4 do it. If you're not prepared to do it and you've
5 never done it before, and you haven't got a contractor
6 lined up, yes and yes.

7 MR. MOSS: Were you involved in the
8 preparation of the Draft EIR?

9 DR. EGAN: No, I was not.

10 MR. MOSS: The Draft EIR says that if the gas
11 pipeline failed under a flooded Bacon Island one remedy
12 might be to abandon that line and install a new line
13 that would be pulled under the flooded island. Do you
14 agree?

15 DR. EGAN: I read -- you need to read that to
16 me again. I was thinking ahead, if you could just read
17 it again.

18 MR. MOSS: The Draft EIR says that if the gas
19 pipeline failed, for whatever reason, under a flooded
20 Bacon Island one remedy might be to abandon that line
21 rather than trying to fix it and install a new pipeline
22 that would be pulled under the flooded island. Do you
23 agree?

24 DR. EGAN: Well, yeah, but you would have to
25 build a gravel island in the middle of the island,

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1 because you can only go about a mile in directional
2 drilling. So you'd have to have two bites at it. You
3 could probably do it.

4 MR. MOSS: My question is: Given the flooded
5 condition of Mildred Island would it be possible to
6 pull a large pipeline all the way from McDonald Island
7 under both Mildred and Bacon all the way to Palm Tract?

8 DR. EGAN: But you don't do that, Mr. Moss.
9 You build a gravel island, you work from the gravel
10 island. You put your drill pit in there, you drill as
11 far as you can go and you do it again. So, yes, it's
12 possible to do it, but it's -- it's complex and
13 complicated.

14 MR. MOSS: Your testimony claims that ASME
15 (B)31.4 is the industry standard for the placement of
16 natural gas pipelines. And I assume by inference you
17 mean the standard for Line 57B; is that correct?

18 DR. EGAN: We never got the original design
19 documents, so I don't know which ones were used, but
20 31.4 API 1104 are the standards we would use for that
21 type of line.

22 MR. MOSS: And you submitted this as an
23 exhibit; is that correct?

24 DR. EGAN: Submitted what?

25 MR. MOSS: The copy, or by reference as in

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1 your testimony as referred to as an exhibit?

2 DR. EGAN: Yes.

3 MR. MOSS: In this situation does not -- does
4 that supersede the standards set forth in California
5 Public Utilities General Order 112?

6 DR. EGAN: I don't know the answer to that,
7 because I'd have to look at the date of the code of
8 record for the installation of this pipeline. And I
9 haven't seen any information that would enable me to do
10 that, so I don't know.

11 MR. MOSS: Because I would ask you that in
12 actuality from what I have seen in this, (B)31.4 has no
13 relevance to PG&E's gas transmission lines which must
14 comply with GO 112. And GO 112 incorporates by
15 reference Title 49, Code of Federal Regulations parts
16 190, 191, 192, 193, and 199.

17 Is that not so?

18 DR. EGAN: That's true, but I think the Code
19 of Regualtions also refers you to back to ASME
20 standard, or the API standard.

21 MR. MOSS: I'd make just one observation here
22 and that is -- and we'll bring it out in our testimony,
23 that in part 192 there is a reference to some 26 named
24 documents that are incorporated by reference not
25 including (B) 31.4. So we believe it's not the

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1 standard.

2 That's all -- actually, excuse me. I do -- I
3 do have a couple more questions. Your testimony
4 attempts to draw a comparison between what you imply is
5 PG&E's willingness to accept the costs and risks of
6 operating a high-procedure gas pipeline across flooded
7 Mildred Island. And, therefore, it should make no
8 difference if Delta Wetlands intentionally floods Bacon
9 Island. Am I correct, is this your view?

10 DR. EGAN: We have used that in part as an
11 evaluation of what the line has experienced or would
12 experience in the future and what it has experienced in
13 the past, yes.

14 MR. MOSS: Has this been based on any field
15 study?

16 DR. EGAN: We haven't done any field study.
17 The only thing we've done is looked at your records
18 where they indicate you did at least the equivalent of
19 walk down surveys for Mildred Island where you rode a
20 boat across it and checked for leaks.

21 MR. MOSS: Would you agree that in the long
22 term the cost of maintaining the flooded right-of-way
23 on Mildred Island will be greater per lineal foot than
24 a dry right-of-way on Bacon Island?

25 DR. EGAN: Well, I guess what you're doing

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1 right now -- if we just take that question and apply it
2 to Mildred Island where you could previously walk
3 across there in a relatively short period of time, it's
4 about a mile. Now you have to row across, I would
5 agree with you, yes, it would cost you more.

6 MR. MOSS: Well, assuming though in the long
7 run maintenance is more than just rowing a boat. It
8 involves actually some interface and maintaining --
9 physically maintaining the line.

10 But you would agree that that's going to cost
11 us more money than it would to do comparable
12 maintenance on a dry line on Bacon Island?

13 DR. EGAN: In general that's true, yes.

14 MR. MOSS: Okay. Are you aware that Mildred
15 Island accidentally flooded during a winter storm and
16 not because anyone wanted it flooded, at least as far
17 as I know?

18 DR. EGAN: Yes, I am aware of that.

19 MR. MOSS: Okay. If you were in PG&E's shoes
20 would you be indifferent that the Mildred Island
21 section of the right-of-way of this major line was
22 flooded and/or located on a questionable levee, would
23 you be indifferent to that?

24 DR. EGAN: If I were in PG&E's shoes I would
25 have the information that PG&E got from its pigging

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1 run, which I don't have now. And that information
2 would provide me -- it would give me the knowledge that
3 would enable me to decide whether -- I certainly
4 wouldn't be indifferent, but I would decide what
5 management program I would apply to the Mildred Island
6 part of the line. So if you give me the -- I'll make a
7 deal with you, if you give me the pig run results I'll
8 tell you how to best manage that piece of your line.

9 MR. MOSS: Well, we may take you up on that.

10 DR. EGAN: It may work out fairly well.

11 MR. MOSS: Finally, Dr. Egan, if PG&E has a
12 choice, and this is a hypothetical, based on its senior
13 recorded easements to refuse to permit Bacon Island's
14 pipeline right-of-way to be intentionally flooded, can
15 you think of any reason why PG&E should give up this
16 dry right-of-way for a sometimes flood, always muddy
17 and difficult to work in environment for this proposed
18 Delta Wetlands?

19 DR. EGAN: It might surprise you to know that
20 we have people that gravel in that environment, because
21 they're engineers and engineers solve problems. And if
22 they can't find one to solve they will create one. I'm
23 not sure I know how to respond to your question.

24 MR. MOSS: Enough said. Thank you.

25 HEARING OFFICER STUBCHAER: Thank you,

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1 Mr. Moss. Okay. California Urban Water Agencies,
2 James Roberts.

3 ----oOo----

4 CROSS-EXAMINATION OF DELTA WETLANDS PROPERTIES

5 BY CALIFORNIA URBAN WATER AGENCIES

6 BY JAMES ROBERTS

7 HEARING OFFICER STUBCHAER: Good afternoon.

8 MR. ROBERTS: James Roberts, Deputy General
9 Counsel with the Metropolitan Water District asking
10 questions today on behalf of the California Urban Water
11 Agencies.

12 I have a couple quick questions for
13 Mr. Hultgren and then I think the bulk of the questions
14 will be for Dr. Kavanaugh and Dr. Brown.

15 HEARING OFFICER STUBCHAER: Pardon me for just
16 a second. Can you hear in the back of the room?

17 THE AUDIENCE: No.

18 HEARING OFFICER STUBCHAER: You need to,
19 perhaps, extend the mic, or get closer to it. You have
20 a nice soft voice.

21 MR. ROBERTS: Dr. Hultgren -- Mr. Hultgren,
22 I'm sorry.

23 MR. HULTGREN: Right, no doctor.

24 MR. ROBERTS: That's fine with me. On page 9
25 of your Exhibit 17 you discuss the use of interceptor

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1 wells to help protect the stability of levees. And, in
2 particular, the idea was to pump the groundwater -- I
3 guess, pump the groundwater out into a holding area to
4 protect the stability. And those pumps would be
5 running continuously when the reservoir is in use?

6 MR. HULTGREN: That's conceptually correct.

7 MR. ROBERTS: That's conceptually correct,
8 okay. Do you have any estimate of how much water would
9 be pumped while those pumps would be going while the
10 reservoirs are in use?

11 MR. HULTGREN: It going to vary considerable
12 based on the number of borrow pits and the conditions
13 change a lot around the Delta. A typical number -- and
14 the numbers vary a lot, but a typical number may be on
15 the range of 20 gals per minute for wells based about a
16 hundred and fifty feet apart.

17 MR. ROBERTS: Thanks. Would you be able to
18 put that 20 gals per minute into an acreage per year?

19 MR. HULTGREN: I would be able to, but I can't
20 do it with my fingers. And I don't have a calculator
21 with me.

22 MR. ROBERTS: Okay. Okay. Where would that
23 water be pumped? Where would it go?

24 MR. HULTGREN: Back into the reservoirs.

25 MR. ROBERTS: Back into the reservoirs so

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1 essential you're drawing the groundwater through the
2 peat soils and putting it back into the reservoir?

3 MR. HULTGREN: We're capturing the water
4 that's trying to leave the island and putting it back
5 into the reservoir.

6 MR. ROBERTS: Okay. And that's probably down
7 to the peat soils?

8 MR. HULTGREN: There will be -- the seepage --
9 the predominant seepage will be from our borrow pits.
10 And a percentage will go through the -- seep through
11 the peat, a small percentage.

12 MR. ROBERTS: A small percentage?

13 MR. HULTGREN: Maybe a quarter, that's not
14 small, but -- there's a lot of variation and conditions
15 out there.

16 MR. ROBERTS: Okay. So 25, 30 percent of the
17 water that's going to be pumped back into reservoirs is
18 coming through the peat soils?

19 MR. HULTGREN: Eventually. But what's
20 initially going to happen is that water is recharged
21 and we'll pump it in the aquifer and so whatever --
22 whatever that balance is. So --

23 MR. ROBERTS: Okay. That's all the questions
24 I have for you. Thank you.

25 Dr. Kavanaugh --

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1 DR. KAVANAUGH: Yes.

2 MR. ROBERTS: -- this water that would be
3 pumped back into the reservoir after going through the
4 peat soils, whatever amount, wouldn't that increase the
5 TOC reading and concentration in the reservoir?

6 DR. KAVANAUGH: I have not undertaken that
7 analysis. The seepage water would be pumped presumably
8 back into the reservoir. And it would represent an
9 additional quantity of water containing DOC going into
10 the reservoir. And I'd have to evaluate that in terms
11 of quantity. I haven't done that.

12 MR. ROBERTS: Okay. So it's not in your
13 calculations now?

14 DR. KAVANAUGH: It's not in the calculations
15 now.

16 MR. ROBERTS: Okay. Thank you.

17 Dr. Brown, going back to something
18 Mr. Hultgren was discussing with Mr. Nomellini, when
19 you did your water supply analyses did you assume that
20 you would be able to store up to plus six evaluation --
21 elevation?

22 DR. BROWN: The simulation volume, the total
23 volume of the reservoir includes storage to plus six
24 and that's the 238,000 acre feet volumes for the two
25 reservoirs at plus six.

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1 MR. ROBERTS: And if you're unsuccessful in
2 getting the ability to store up to plus six what kind
3 of an impact would that have on your ability to store?

4 DR. BROWN: Well, I like round numbers. We're
5 working with around 10,000 acres, so every foot is
6 10,000 acre feet.

7 MR. ROBERTS: 20,000 acre feet?

8 DR. BROWN: If you go down two feet then your
9 maximum storage would be reduced by 20,000 acre feet.

10 MR. ROBERTS: Okay. Dr. Brown, I think it was
11 in response to Mr. Jackson, did you state that the
12 State Board staff directed you to use this 20-percent
13 criteria?

14 DR. BROWN: Correct. Remember we work for the
15 State Board. This is their document. We simply did
16 the work. And so the 20-percent criteria is their
17 significance criteria.

18 MR. ROBERTS: Without that direction if you
19 were just doing this on your own, would you have come
20 up with a similar criteria?

21 DR. BROWN: I think I would have.

22 MR. ROBERTS: Okay. Earlier today I think
23 Mr. Maddow was asking you questions, and you weren't
24 able to identify any other analysis that you're aware
25 of that uses that 20-percent criteria, were you?

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1 DR. BROWN: I was unable to. I was scanning
2 my banks to come up with it. We have two -- we can use
3 two other examples. Los Vaqueros as I was beginning to
4 describe, decided that if the change was within five
5 percent it could have not been actually -- it's not
6 actually real. It's not detectable. It might have
7 just been a modeling error, or measuring error.

8 Beyond that they did not actually use a
9 percent change as a significance criteria, but rather
10 more of a qualitative evaluation, did it look as though
11 the change in salinity overall was detrimental? We
12 have another document in the same area, the interim
13 South Delta document. They used the established water
14 quality control plan limits as the significance
15 criteria.

16 If the salinities did not exceed the
17 established protective objective levels, then the
18 significance was assumed to be less -- the
19 environmental impact was assumed to be less than
20 significant. What was thought for this document was
21 that in addition to protecting the established standard
22 with a ten-percent buffer, that is anything up at 90
23 percent of the established objective would be
24 considered significant, it was decided to put in this
25 additional significance criteria limiting the

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1 month-by-month change even if it was within
2 significance -- less than, I'm sorry, the established
3 objectives.

4 MR. ROBERTS: The criteria that the Contra
5 Costa Water District it was based on actual impacts to
6 the water quality. Is that what you just stated?

7 DR. BROWN: I am saying they did not use a
8 numerical percent change as a significance criteria,
9 that they used more of a qualitative overall evaluation
10 of the change.

11 MR. ROBERTS: Okay. Would you think that
12 might be a more protective way to analyze the impacts
13 on drinking water quality?

14 DR. BROWN: No. It -- we can't really say
15 it's more or less, because it involved -- it did not
16 involve specified percent changes. It just involved
17 sort of a narrative qualitative discussion of the
18 overall changes in salinity. Whereas here we're trying
19 to actually establish, where we can, specific limits
20 that were used as significance criteria.

21 MR. ROBERTS: Okay. Now, I think from your
22 earlier testimony today I understand you that you are
23 not recommending to the State Board that they adopt a
24 permit term that would allow up to a 20-percent
25 increase in impacts on drinking water quality. Is that

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1 correct?

2 DR. BROWN: I was simply saying that the
3 significance criteria that State Board selected for the
4 impact assessment need not be the same as the actual
5 operating standards that may be established for
6 preventing impact at the exports.

7 MR. ROBERTS: Okay. Are you recommending an
8 operating standard?

9 DR. BROWN: No. I'm doing the environmental
10 assessment of the potential effects of the project.

11 MR. ROBERTS: Okay. Dr. Kavanaugh, I believe
12 you did recommend a standard, for example, .8
13 milligrams per liter increase in dissolved organic
14 carbon?

15 DR. KAVANAUGH: No, that's -- that's not
16 correct. I -- and I'm not sure what you're referring
17 to and where I might have done that, but I have not
18 recommended any standard.

19 MR. ROBERTS: Okay. You might have called it
20 a monitoring mitigation measure.

21 DR. KAVANAUGH: Well, the mitigation measure
22 that I discussed in my testimony addressed the question
23 of what should be the components of a monitoring
24 program that would be used in conjunction with some
25 kind of a decision analysis as to whether or not the

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1 amount of water being discharged from the reservoir
2 should be reduced in the rate of discharge.

3 And that one of the key criterion that would
4 be used then is some significance level in the export
5 in the DOC in the export waters would determine whether
6 or not you could -- could continue to discharge, or
7 whether you had to reduce.

8 So I avoided the question of what that
9 standard, or what that number ought to be. I did use,
10 however, the significance level that Dr. Brown used in
11 his DEIR as part of my assessment. In other words, in
12 drawing my conclusions I used that significance level.

13 MR. ROBERTS: Okay. I've got page 40 -- 43 --
14 or 45 of your Exhibit 13.

15 DR. KAVANAUGH: Uh-huh.

16 MR. ROBERTS: And there's a second bulletin
17 here, Mitigation Measure C5. And you're suggesting, I
18 guess, restrict Delta Wetlands's discharges to prevent
19 DOC increases of .8 milligrams per liter in Delta
20 exports. You wouldn't consider that an operating
21 restriction?

22 DR. KAVANAUGH: Well, the context of my
23 discussion here is summary of the two mitigation
24 measures that were proposed in the DEIR -- in the Draft
25 EIR/EIS. I'm just restating them in my testimony.

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1 MR. ROBERTS: Okay.

2 DR. BROWN: I am ready to take responsibility
3 for the mitigation measure. And, perhaps, that is what
4 you're asking about.

5 MR. ROBERTS: Dr. Kavanaugh, then you are not
6 recommending any operating criteria for imposition on
7 the project that the State Board should adopt?

8 DR. KAVANAUGH: No, I'm not. I'm not
9 recommending any criteria. I would point out, however,
10 that the .8 number when it is applied to the
11 operational plan for the Delta Wetlands Project, you're
12 looking at a potential impact over a short period of
13 time relative to a full year's operation.

14 So I think that has to be kept in mind that,
15 as I pointed out in my testimony, for a significant
16 portion of the year the DOC levels in the export waters
17 will be lower than what they are today, slightly
18 however. And the .8 significance criteria is really
19 going to be relevant during the period of discharge,
20 which is a short period of time.

21 MR. ROBERTS: Well, let me ask you: If a
22 project were to cause an increase in contaminate levels
23 that triggered another regulatory requirement even if
24 it is a short period of time, don't you think that
25 would be significant?

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1 DR. KAVANAUGH: You would not be able to
2 determine that, because this would be, of course, at
3 the treatment plant. So what goes out in the export
4 waters and what happens at the treatment plant are two
5 different factors. So I don't know how I could answer
6 that.

7 MR. ROBERTS: Well, let me go to an example on
8 page -- in your Exhibit 13, page 17, I think it is.

9 DR. KAVANAUGH: Uh-huh.

10 MR. ROBERTS: This is Table 3-2.

11 DR. KAVANAUGH: Yes.

12 MR. ROBERTS: And this is EPA's new
13 disinfection by-product rule?

14 DR. KAVANAUGH: Proposed, yes.

15 MR. ROBERTS: Proposed. Now, in your
16 testimony you stated that there is no -- there is no
17 regulation for DOC, correct?

18 DR. KAVANAUGH: That's correct.

19 MR. ROBERTS: Now, in the Delta isn't DOC --
20 aren't DOC and TOC about the same?

21 DR. KAVANAUGH: Based on the data that I
22 reviewed, which comes from the DWR database, they
23 appear to be about the same, a little bit higher in TOC
24 as up you would expect, but the data I would say
25 they're equivalent.

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1 MR. ROBERTS: About a five-percent difference?

2 DR. KAVANAUGH: Well, it's actually -- there's
3 some anomalies in the data. So I'd say they're
4 approximately the same.

5 MR. ROBERTS: So the new EPA rule is going to
6 have a THM removal requirement, isn't it, based on
7 the --

8 DR. KAVANAUGH: DOC -- TOC removal, yes.

9 MR. ROBERTS: TOC removal, I'm sorry. And
10 isn't that essentially a DOC rule?

11 DR. KAVANAUGH: Well, I think that requires an
12 interpretation of a proposed rule that is not yet in
13 place. It's my understanding of the regulatory process
14 that the primary drivers for Stage 1 will be the
15 disinfection by-product concentrations, which are 80
16 micrograms per liter for THM's, and 60 for haloacetic
17 acids.

18 I think the TOC removal requirements, whether
19 or not that would be a national standard I think is
20 still under dispute. In other words, a water treatment
21 plant will have to meet the standards with respect to
22 these compounds in the treated water whether they
23 achieve that with 35 TOC removal or 30 is, I think, an
24 option that the water treatment plant has.

25 MR. ROBERTS: An option, you don't think that

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1 the EPA -- this is going to be required?

2 DR. KAVANAUGH: Well, it might be, but I think
3 it's still proposed. I actually -- in my opinion, I
4 think what EPA is going to have to do is treat the
5 effluent -- the treated water standard as the
6 regulatory standard. And I'm -- I would be somewhat
7 surprised if they required water treatment plants to
8 monitor their TOC/DOC removal. And if they exceeded --
9 for example, if they were unable to meet 35 percent on
10 some quarterly basis, they would then have to report
11 that to their customers and so on and so forth.

12 So I think that the probable outcome of this
13 whole discussion is going to be try to meet these
14 goals. If you can't, give us a reason why you can't.
15 And if you're meeting the drinking water standard with
16 respect to disinfection byproducts you're free to
17 operate your treatment plant within some limits as you
18 wish. So I'm not sure it's going to end up being a
19 standard, but it could.

20 MR. ROBERTS: After all that, that's not the
21 proposed standard. This is the proposed standard in
22 Table 3-2?

23 DR. KAVANAUGH: Well, 3-2 is part of the
24 enhanced -- what's the --

25 MR. ROBERTS: This is actually another table

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1 statement based on the way in which the Draft EIR/EIS
2 was conducted.

3 MR. ROBERTS: Okay. Let me go to page 22 of
4 your exhibit -- I'm sorry, page 20. This is Table 3-5.
5 The bromide in that table at the Banks pumping plant --
6 let me see, I've got the wrong table I think.

7 Let me take a look at page 47 -- yeah, page
8 47, I'm sorry, Table 5-1.

9 DR. KAVANAUGH: Okay.

10 MR. ROBERTS: Banks pumping plant shows median
11 value of DOC at 3.9 milligrams per liter.

12 DR. KAVANAUGH: Yes.

13 MR. ROBERTS: So if that is the median
14 value -- and I think at other places in here you use
15 3.6 and 3.4 as the average at Banks pumping plant, but
16 if any of those numbers are the average, and the
17 project increases the DOC by .8 milligrams per liter we
18 will be over the 4.0 requirement in the DEPA rule,
19 wouldn't we?

20 DR. KAVANAUGH: You have to look at the
21 monthly average approach that Dr. Brown has used and
22 during the months when the primary discharges are
23 likely to occur, which is July, August, and
24 September -- am I right about that, Dr. Brown, June,
25 July, and August? I can't remember.

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1 DR. BROWN: July, August, and September.

2 DR. KAVANAUGH: July, August, and September
3 the average DOC concentrations are in the range of 3 to
4 3.2. So if during those months you had .8 exceedance
5 then the concentrations of the DOC would go up into the
6 3.8 range.

7 Now, the 4.0 number, I'm not too clear on how
8 that is applied. In other words, how it's determined
9 that you have to increase your DOC removal. As I
10 pointed out in my testimony if you look at DOC on an
11 annual basis the increase is -- it's unlikely to
12 change, that is the 3.9 value is unlikely to change.

13 MR. ROBERTS: Maybe I can ask Dr. Brown. Do
14 you know how this -- how this is triggered?

15 DR. BROWN: It's my understanding that you
16 take a measurement once in a month. And then that's --
17 and that -- that establishes which level, the TOC level
18 you're required to meet; is that correct? I don't
19 know. I don't know how EPA is going to apply these
20 categories of treatment plants -- excuse me --

21 MS. BRENNER: Excuse me, Dr. Brown. Can I
22 just ask that you clarify what you're speaking about,
23 what is going to be triggered?

24 MR. ROBERTS: The DOC removal requirement.

25 MS. BRENNER: You're talking about the

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1 proposed treatment rule?

2 MR. ROBERTS: Yes.

3 MS. BRENNER: Thank you.

4 MR. ROBERTS: Your answer?

5 DR. BROWN: My answer is I don't know how EPA
6 will characterize it, but if they were, perhaps, to
7 characterize it month-by-month, then often there's
8 already much more than four milligrams per liter in the
9 export water. So that if they were to apply it in that
10 sort of a month-by-month basis then all of the
11 treatment plants currently receiving Delta exports
12 would, I guess, be under that more stringent rule. My
13 understanding is it would be a source characterization
14 that would put a treatment plant in one category or
15 another.

16 HEARING OFFICER STUBCHAER: How much time?

17 MR. ROBERTS: 15 minutes.

18 MEMBER DEL PIERO: I like the noise that thing
19 makes.

20 HEARING OFFICER STUBCHAER: I'm not sure we
21 did the right thing putting the noise on this.

22 MEMBER DEL PIERO: I don't think we did.

23 HEARING OFFICER STUBCHAER: It is an attention
24 getter. I didn't request it.

25 MR. ROBERTS: Okay. Dr. Kavanaugh, could we

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1 go to page 44 of your exhibit?

2 DR. KAVANAUGH: Sure.

3 MR. ROBERTS: In here you state that the
4 median project contribution to combined exports would
5 be 8 to 12 percent on average?

6 DR. KAVANAUGH: Yes.

7 MR. ROBERTS: That's in July and August as
8 well?

9 DR. KAVANAUGH: No. During those months the
10 contribution could be higher.

11 MR. ROBERTS: Okay. Up to a third?

12 DR. KAVANAUGH: Yes.

13 MR. ROBERTS: What would the average be of
14 those two months?

15 DR. KAVANAUGH: I don't know if I computed
16 that. If you look on Figure 5-6, I believe Figure 5-6
17 provides a --

18 MR. ROBERTS: What page is that?

19 DR. KAVANAUGH: It's page 57 of DW 13.

20 MR. ROBERTS: Oh, okay.

21 DR. KAVANAUGH: It provides a summary of the
22 Delta Wetlands Project's discharge mean and maximum
23 versus the CVP and SWP combined exports, mean and
24 maximum

25 MR. ROBERTS: All right. Let's assume that

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1 the July, August discharges are 8 to -- 10 to 12
2 percent.

3 DR. KAVANAUGH: Uh-huh.

4 MR. ROBERTS: Even though we recognize they
5 could go higher. You go on to say that assuming the
6 project contributes 12 percent detriment to the water,
7 the DOC concentration in the project reservoir would
8 have to be 10.6 milligrams per liter to reach the .8
9 milligrams per liter significance criteria?

10 DR. KAVANAUGH: That's correct.

11 MR. ROBERTS: Now, I think I can ask this
12 question of you: Since the stored water in your
13 flooded wetlands experiment went from 4 milligrams to
14 the 8 milligrams per liter in three months, isn't it
15 fairly likely that that -- you'll get that 10.6
16 increase, therefore, an increase in .8 milligrams per
17 liter?

18 DR. KAVANAUGH: Well, I'm glad you asked that
19 question, because it's really one of the most critical
20 and key points regarding this whole issue of DOC.

21 And the short answer: The results of
22 Dr. Brown's tests were consistent with the amount of
23 DOC that I have evaluated and put into my testimony.
24 That amount of DOC if it were released on the
25 islands -- reservoir islands would be diluted in

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1 238,000 acre feet of water. So consequently the
2 concentration, as I said yesterday in my testimony,
3 would be below -- the change in concentration would be
4 in the order of three -- two or three milligrams per
5 liter.

6 The concept of the DOC increasing in the
7 reservoir island from the background level, which is
8 somewhere between 3 and 5 milligrams per liter up to 40
9 milligrams per liter implies the release of over 8
10 million kilograms of DOC. 8 million kilograms of DOC
11 represents about two-thirds of the total amount of DOC
12 that is discharged by the -- all the agricultural
13 drainage in the Delta.

14 So the probability of this event occurring is
15 zero. So I feel very strongly that the concentrations
16 that -- a postulation going up to 30, 35, 40 milligrams
17 per liter this is totally contrary to any kind of
18 reasonable analysis of what's going on in -- on those
19 reservoir islands.

20 MR. ROBERTS: It's more than a postulation.
21 They did do a study.

22 DR. KAVANAUGH: Well, as I said, they put a
23 foot and a half of water on top of the -- what is it,
24 half a meter, I guess? How deep was the amount of
25 water on the island, do you know?

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1 DR. BROWN: I know I didn't explain this
2 diagram very well yesterday.

3 MR. CORNELIUS: Can you identify it?

4 DR. BROWN: It is figure C3-11 from the Draft
5 EIR/EIS document. What I really want to say about this
6 diagram is that unfortunately there is no way to
7 directly measure the load that comes off the bottom of
8 either an agricultural island or the reservoir island.

9 Therefore, what we have to do is indirectly
10 estimate the load by measuring a concentration in a
11 water and multiplying that concentration by the amount
12 of water that the load has gone into. And in the case
13 of the very shallow flooded wetlands we get a very high
14 change in concentration, which we want in an
15 experimental design in order to be able to accurately
16 measure the change in concentration. But if we flood
17 the island, as I mentioned, let's say it was one meter
18 when the seasonal experiment was done, but we now plan
19 to store five meters then we would expect, unless
20 there's a change in the load from the island, to have a
21 fifth of the concentration in that water.

22 And that is the reason that the reservoir
23 island concentration will not be nearly as high as the
24 experimental concentrations.

25 MR. ROBERTS: I see. But you can get a change

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1 in load from the island, can't you?

2 DR. KAVANAUGH: You might get a change in the
3 load from the island. All you need to do is identify
4 the likely mechanism whereby you would expect more DOC
5 to emerge from the vegetation or the peat. Since we
6 are not expecting nearly the vegetation on the
7 reservoir island, we would have to focus on why would
8 the peat soils, or is there mechanisms -- likely
9 mechanisms that the peat soil would release more
10 loading under a reservoir condition than they do under
11 agricultural or the experimental wetlands conditions.
12 Only by changing the load by five times could we have
13 the same concentration with five times the water.

14 MR. ROBERTS: Well, let's talk about that.
15 The five times the water, how often are these
16 reservoirs going to be full? I might have missed this.
17 I believe Ms. Dour just testified a few minutes ago it
18 would be about 50 percent of the time.

19 DR. KAVANAUGH: No. These reservoirs will be
20 full for most years where they're able to operate.
21 That is where there is a Delta water. And as we were
22 saying, you have to count the simulations. First you
23 have to -- we'll skip that. We'll believe the
24 simulations count the number of years where it's filled
25 and we find that over 50 out of the 70 years it is

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1 filled to near capacity.

2 MR. ROBERTS: For some period of time?

3 DR. KAVANAUGH: For at least -- right, some
4 period.

5 MR. ROBERTS: I'm looking here at Delta
6 Wetlands Exhibit 10, Table 3, page 3 of 3, this is
7 something Mr. Jackson brought up earlier, and it's a
8 period from 1987 to 1991 when the reservoir was empty
9 two years, and pretty much empty the other three years.
10 We're likely to get those types of years, aren't we,
11 where there's not going to be much water at all to
12 store in the reservoirs?

13 DR. KAVANAUGH: No, we hope we don't get them
14 every year.

15 MR. ROBERTS: I'm with you on that. Also I
16 think -- Dr. Bogdan.

17 MR. BOGDAN: I'm not a doctor.

18 MR. ROBERTS: I'm sorry. You said that when
19 the reservoirs are being managed when they're not being
20 used for storage there would be about 12 inches of
21 water on the reservoirs. Is that correct?

22 MR. BOGDAN: My testimony just was a summary
23 of the project description actually that Dave Forkel,
24 who's not a doctor either, he's the one that mentioned
25 the actual depth. So maybe Dave Forkel could answer

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1 your question.

2 MR. ROBERTS: That would still be the
3 question. When the reservoirs aren't -- aren't being
4 used for storage there could be about 12 inches of
5 water on the reservoir when they're not being used for
6 storage?

7 MR. FORKEL: On average, yes.

8 MR. ROBERTS: On average, okay.

9 MR. FORKEL: And that would be during the
10 winter, not during the summer.

11 MR. ROBERTS: Okay. Unless it's a bad summer
12 and there's no water, like 1987 through '91, or would
13 there be less water during that period of time?

14 MR. FORKEL: That's right.

15 MR. ROBERTS: That 12 inches of water, that's
16 the type of water you had in your experiment, isn't it?

17 MEMBER BROWN: Yes. That would be more
18 similar to the experimental conditions.

19 MR. ROBERTS: And we will be getting that at
20 some period of time?

21 MR. FORKEL: That water depth at some period
22 of time, yes.

23 MR. ROBERTS: And between that and the 22
24 feet?

25 MR. FORKEL: Right.

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1 MR. ROBERTS: Okay. And this is table --
2 Figure 5-5, this is the one that shows your comparison
3 of the estimates of the DOC?

4 DR. KAVANAUGH: Sure.

5 MR. ROBERTS: While we're doing that,
6 Dr. Brown, I believe earlier you testified that there
7 is very little data on the -- regarding the DOC loading
8 potential?

9 DR. BROWN: I said there is very little
10 related to -- there's very good information on
11 conductivity, or salinity. So relatively we know less
12 about dissolved organic carbon.

13 MR. ROBERTS: Okay. So there's still a lot of
14 uncertainties in that data?

15 DR. BROWN: There's uncertainties in our
16 knowledge of DOC.

17 MR. ROBERTS: Okay. Okay.

18 DR. BROWN: The data, what we have is not
19 necessarily uncertain.

20 MR. ROBERTS: Now, Dr. Kavanaugh, looking at
21 the right-hand column here your estimate of DOC
22 loadings from about 1.3 million kilograms a year to
23 400,000, again, I think that suggests, doesn't it,
24 quite a lot of uncertainty as to just how much DOC
25 we're going to see on the island, accrues on the

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1 island, wouldn't you agree?

2 DR. KAVANAUGH: I would agree that my analysis
3 shows a fairly wide range of releases. It's a factor
4 of three. I think that does reflect some degree of
5 uncertainty. And, in fact, that's why I approached it
6 in that manner. That is to say, I used numbers that I
7 felt were justified. And it shows that we have a
8 fairly significant range from low to high.

9 The reason I went through that analysis
10 primarily, of course, was to define that high number,
11 because that's really the key thing here that we have
12 to consider in the context of comparing the project to
13 a no-project condition.

14 MR. ROBERTS: Dr. Brown, in your experience
15 don't drinking utilities rely and operate their plants
16 with a safety buffer so they don't have -- so when a
17 spike, or some out of the ordinary occurrence comes
18 along they don't exceed a numerical standard?

19 DR. BROWN: Treatment plants are able to
20 treat a wide variety of water which they -- each
21 treatment plant knows its source water characteristics
22 and is prepared to treat the full range of source water
23 quality.

24 MR. ROBERTS: Well, for example, if the THM
25 level is 100 micrograms per liter, would you design and

1 operate your plant to meet that, or would you shoot for
2 something less?

3 DR. BROWN: My plant, I'd shoot for something
4 less.

5 MR. ROBERTS: Okay. And, in fact, in the
6 proposed DEPA rule doesn't the EPA recommends an
7 80-percent safety level?

8 DR. BROWN: I don't know.

9 MR. ROBERTS: Does that sound like a
10 reasonable safety buffer to you?

11 DR. BROWN: I don't know if it is or not. I
12 don't -- I really don't run treatment plants.

13 MR. ROBERTS: Okay. Assuming, as I think we
14 agreed, that you'd like to have a safety buffer in your
15 operation, wouldn't your 90-percent exceedance pretty
16 much destroy a large part of that buffer and isn't that
17 a significant impact?

18 DR. BROWN: No. What we're doing with the 90
19 percent is something very similar to a safety factor
20 for operation. We're saying that if -- if the project
21 that we're analyzing were to cause conditions that get
22 that close to an absolute standard, or large poly
23 objective, then coming that close to a standard would
24 be considered significant no matter how slight the
25 change is from the project. And so the 10 percent is,

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1 I think, analogous to a safety factor as you've
2 described it for a treatment plant.

3 So we were -- that is the State Board staff
4 working with us was actually creating a safety factor
5 threshold. And our selected value was 90 percent. And
6 maybe there would be a different safety factor level,
7 perhaps, 80 percent for a treatment plant. I don't
8 know that.

9 MR. ROBERTS: And if someone had that
10 80-percent factor -- safety factor the 90 percent
11 would -- would -- would destroy part of that buffer,
12 wouldn't it?

13 DR. BROWN: Well, I'm -- I'm not clear that
14 they're connected. We're saying they're similar
15 things. We're trying to protect conditions that are
16 very close to an established maximum possible, or
17 threshold. And whether -- so I'm not sure that they're
18 connected.

19 MR. ROBERTS: Well, I guess what I'm getting
20 at is if the project were to allow a constituent to go
21 up to 90 percent of the numerical standard your
22 conclusion is that wouldn't be a significant impact,
23 correct?

24 DR. BROWN: Correct. That was our -- one of
25 our significance criteria that it could not be beyond

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1 90 percent of an established level.

2 MR. ROBERTS: Okay. Now, if as the EPA
3 suggests that you should be operating at 80 percent,
4 that's going to have an impact on that treatment plant
5 that's attempting to operate at that 80 percent, isn't
6 it?

7 DR. BROWN: Well, again, I'm not sure they're
8 connected. The 80 percent has something to do with the
9 treatment plant being able to handle the wide range of
10 natural fluctuations that it's likely to encounter.
11 That is you wouldn't design the treatment plant to only
12 meet the standards when you know there's going to be
13 fluctuations in, in our case, bromide and DOC. And
14 what if it occurred together?

15 It says, over design your plant in order to
16 handle these natural fluctuations. That's different
17 than finding significance for a project that causes you
18 to approach that level.

19 MR. ROBERTS: Well, I guess if the project
20 increases the constituents it just sort of shrinks the
21 buffer available for other occurrences?

22 DR. BROWN: Well, it might. And that is why
23 there are limits placed in our evaluation as you
24 approached an established level, and that is the reason
25 for limiting the change in DOC itself to the 20

1 percent. That was a -- I'm sorry, significance
2 criteria. And it's really aimed at this very concept
3 that you are discussing.

4 MR. ROBERTS: We have Dr. Kavanaugh, again.

5 HEARING OFFICER STUBCHAER: How --

6 MR. ROBERTS: May I continue?

7 HEARING OFFICER STUBCHAER: How much time?

8 MR. ROBERTS: The same 15 minutes that I was
9 going to use last time.

10 HEARING OFFICER STUBCHAER: Is this it?

11 MR. ROBERTS: This is it. Stipulate.

12 HEARING OFFICER STUBCHAER: Okay. Stipulate.

13 MEMBER DEL PIERO: It beeps twice, you know.

14 HEARING OFFICER STUBCHAER: You know we hook
15 up the electrode when you stipulate.

16 MEMBER DEL PIERO: Watch out.

17 MR. ROBERTS: Dr. Kavanaugh, your conclusions
18 that there will be no significant impact on water
19 quality are based on the 20 percent to 90 percent
20 threshold; is that correct?

21 DR. KAVANAUGH: That's right, on the annual
22 averages.

23 MR. ROBERTS: On the annual averages, right.

24 DR. KAVANAUGH: Right.

25 MR. ROBERTS: Isn't it likely that your

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1 conclusions would change if the significance level were
2 ten percent or, perhaps, the five percent that Contra
3 Costa was using?

4 DR. KAVANAUGH: Well, with respect to DOC I
5 don't think my conclusion would change, because based
6 on my analysis the likely outcome is an annual average
7 for DOC, the same as the no-project situation.

8 Even if you operated at the limit of the
9 project and the .8 milligrams per liter level was
10 accepted as the -- as the allowable increase, if you
11 will, during those three months duration, that leads to
12 a change in the annual average of .2 milligrams per
13 liter, which is only five percent.

14 So I still think the likely outcome is no
15 change in the annual average. And I think you could
16 operate the reservoirs in a manner which would allow
17 that to be the case.

18 The annual average is very critical, because
19 that's, as you know, the THM standard, or any
20 disinfection by-product standard is based on a
21 quarterly running annual average. So every quarter a
22 sample is taken at a water plant. And then it's an
23 average that is continuing to -- to be modified as you
24 get your next quarterly sample.

25 And so what happens nine months out of the

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1 year is very critical. And what happens in one quarter
2 of the month of the year you can stand some deviation
3 and you're still well within your limits.

4 MR. ROBERTS: The big deviation then, of
5 course, could screw your annual average up?

6 DR. KAVANAUGH: A big deviation could, yes.
7 But as I said I don't -- I think it's very unlikely
8 that such deviation would occur.

9 MR. ROBERTS: And the proposed TOC removal
10 rule, that's on a quarterly average, isn't it, you
11 just --

12 DR. KAVANAUGH: Again -- I'm sorry, I should
13 know this, but I don't. I think it has to be based on
14 some kind of statistics and I don't know what it would
15 be.

16 MR. ROBERTS: Well, I'll leave that, I think
17 we'll probably cover that in direct. Dr. Kavanaugh,
18 isn't the project essentially substituting discharges
19 concentrated in the two months of July and August for
20 the current agricultural advantage which is spread out
21 over six or seven months, from November to April/May?

22 DR. KAVANAUGH: Well, the project can
23 discharge, of course, any time during the year if all
24 conditions are met. So --

25 MR. ROBERTS: The analysis was based on the

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1 discharge in July and August?

2 DR. KAVANAUGH: Well, the analysis the DER --
3 the Draft EIR/EIS analysis was based on some discharges
4 at any time of the year as pointed out in my Exhibit
5 5-6.

6 MR. ROBERTS: Isn't it true, that the focus is
7 on July and August?

8 DR. KAVANAUGH: The bulk of the discharge will
9 occur in those three months.

10 MR. ROBERTS: That's right, July, August, and
11 September?

12 DR. KAVANAUGH: Right.

13 MR. ROBERTS: So from the point of view
14 from -- from the point of view from a drinking water
15 utility don't you think the more important thing for us
16 is the large impact that we might see from the
17 concentrated discharges in July and August rather than
18 the annual average?

19 DR. KAVANAUGH: Well, I think both need to be
20 accounted for. As I mentioned in my testimony,
21 approximately nine months of the year the DOC in the
22 export waters will be reduced by approximately a tenth
23 of a milligrams. And that, certainly, has to be
24 accounted for if you're going to take that kind of
25 approach.

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1 During the three months of the year when the
2 bulk of the discharges would occur, the increases there
3 would -- again, depending on what percentage of the
4 export water is represented of the discharge off of the
5 islands, that can be managed to meet an agreed upon
6 significance, or operational criteria.

7 Right now the number that's being used is .8.
8 Whether or not that is the final number I think is
9 subject to some discussion. But my point is that the
10 concentration of the DOC in the export waters during
11 those three months will only be modestly changed if my
12 estimates are accurate in spite of the discharge over
13 those three months as opposed to all year long for the
14 agricultural drainage.

15 MR. ROBERTS: Okay.

16 DR. KAVANAUGH: By the way, I should point out
17 that the discharge of DOC is from all four islands. So
18 the reservoir islands are discharging their amounts
19 during approximately those three months, but the
20 habitat islands are releasing the DOC all year long.
21 So the one million or so kilograms is still spread out
22 over the year. May be half of that now is going to be
23 discharged in those three months from the reservoir
24 islands. So that needs to be accounted for also.

25 MR. ROBERTS: But on a mass loading basis,

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1 project discharges will release substantially more TOC
2 during the primary release periods of July and August
3 and under the current operations; is that correct?

4 DR. KAVANAUGH: Substantially more is
5 accurate. Relative to the total amount of DOC in the
6 Delta it's still a very small amount.

7 MR. ROBERTS: Dr. Kavanaugh, again, aren't the
8 salinity levels in the channels near the project
9 intakes higher in the winter and fall when the project
10 is diverting than they are in July and August when the
11 project is discharging?

12 DR. KAVANAUGH: I did not look at that
13 particular issue.

14 MR. ROBERTS: Dr. Brown?

15 DR. BROWN: What was the variable you were
16 asking about, salinity?

17 MR. ROBERTS: Salinity.

18 DR. BROWN: Salinity. One of the reasons for
19 doing the month-by-month analysis is that the salinity
20 changes and it may follow the pattern that you're
21 mentioning, or it may not depending on Delta outflow
22 each month.

23 MR. ROBERTS: In general, do you think it
24 would be accurate?

25 DR. BROWN: Well, I'm saying that at a

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1 specific spot there may be that distinct seasonal
2 pattern and there may not be.

3 MR. ROBERTS: I'm thinking of the locations
4 where the projects are diverting from and discharging
5 to.

6 DR. BROWN: Right, but even there the salinity
7 will be highest when Delta outflow is lowest. But when
8 Delta outflow is lowest this project will not be
9 allowed to operate. And so trying to make a
10 generalization of what diversion concentrations of salt
11 would be relative to the discharges is why we use the
12 month-by-month analysis in the Draft EIR.

13 I'll give you a half yes. Sometimes the
14 reservoir water is saltier than the channel water that
15 it's being discharged into it. That is true.

16 MR. ROBERTS: Okay. Now, under the proposed
17 significance criteria, if the numerical standard is
18 250, a 50-parts -- let's see --

19 DR. BROWN: Chloride standard.

20 MR. ROBERTS: Chloride standard, an increase
21 of 50 parts would be allowable, what would be --

22 DR. BROWN: Let's determine significant
23 impacts.

24 MR. ROBERTS: Yes, I'm sorry. Could you tell
25 my what the chloride to bromide ratio is in the Delta?

1 DR. BROWN: It is 0.0035 or .35 percent, if
2 you'd rather.

3 DR. KAVANAUGH: Bromide to chloride.

4 DR. BROWN: That's bromide to chloride. The
5 bromide is relatively low. It is three and a half
6 parts per thousand compared to chloride.

7 MR. ROBERTS: So using that ratio a 50
8 milligrams chloride increase would be a 1.7 milligrams
9 per liter bromide increase, wouldn't it?

10 DR. BROWN: I believe that's right without my
11 calculator.

12 MR. ROBERTS: The current bromide -- the
13 median bromide at the Banks pumping plant I believe
14 in -- at Table 3-5 in Dr. Kavanaugh's report is .29
15 milligrams per liter?

16 DR. KAVANAUGH: That's correct.

17 DR. BROWN: We can assume that for discussion,
18 yeah.

19 MR. ROBERTS: Okay. Assume that, assuming the
20 50 part chloride increase which you think is not
21 significant which would result in 1.7 milligrams
22 bromide increase on top of a .29 milligrams per liter
23 in the channel, wouldn't you consider that a
24 significant increase in bromide?

25 DR. BROWN: Well, no, we did not consider that

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1 a significant increase in bromide. One of the -- one
2 issue is bromide does not have a regulatory level. So
3 we have no top of the ruler, or top of the yardstick to
4 begin to judge the significance.

5 The fact that the bromide level is, let's say,
6 .3 indicates that the average chloride level is well
7 below the 250 established, in this case it's a maximum
8 chloride, at Contra Costa. But let's say it was at
9 another export locations, that simply indicates that
10 the water is much better on average than the standard.

11 State Board staff in conjunction with us
12 decided that the established standard should be used as
13 a yardstick when there is an established standard. And
14 the 20-percent change can give these hypotheticals very
15 large increases if the quality starts out very good.

16 But relative to the established standard what
17 is assumed to protect beneficial uses, the change is
18 still moderate and is used as a point to flag
19 significant impacts.

20 MR. ROBERTS: But here we have no standard for
21 bromide, but in the treatment process it can produce
22 bromate, correct?

23 DR. BROWN: Some treatment processes -- ozone,
24 of course, does produce bromate. Now that we can
25 measure it we can begin to regulate it.

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1 MR. ROBERTS: Right. And an increase from
2 .29 milligrams per liter -- the 1.7 milligrams
3 increase, ballpark 60-percent increase, don't you think
4 that's significant?

5 DR. BROWN: We'd have to do the chemistry to
6 find out if that changes the bromate by a significant
7 amount.

8 MR. ROBERTS: By significant, your 20-percent
9 significance, or the common sense use of the term?

10 DR. BROWN: Well, right, we have too many uses
11 of significant, don't we? But the idea is that if
12 bromate became a substitutive variable and if this
13 change in bromide caused what was selected as the
14 significance criteria for bromate then that might be
15 identified as a significant impact.

16 MR. ROBERTS: Okay. Thank you. Dr. Brown,
17 since the water is going to be stored for nine months
18 longer, which was significant evaporation, I believe
19 you testified 35,000 acre feet; wouldn't that increase
20 the TDS levels in the reservoirs and the reservoir
21 discharges?

22 DR. BROWN: Right, certainly, it does. Just
23 by the fraction of the water that you lose, the
24 salinity, the DOC, and all other dissolved mineral
25 concentrations will be increased by that fraction, or

1 percentage.

2 MR. ROBERTS: Increase the TDS in the water
3 discharged to the channels which is then going to get
4 to the export pumps?

5 DR. BROWN: Right. Whenever the ending
6 reservoir concentration and time of discharge is
7 greater than the channel, it will certainly increase
8 the channel concentration in proportion to how much
9 water is coming off the reservoir islands.

10 MR. ROBERTS: I think that's all I have right
11 now. Thank you.

12 HEARING OFFICER STUBCHAER: Okay. Thank you.

13 We have remaining East Bay Municipal Utility
14 District, Bureau of Reclamation, Water Resources, State
15 Water Contractors, Fish and Game, and, perhaps, some
16 questions from Mr. Maddow for -- is it Kavanaugh?

17 You don't have any questions?

18 MR. MADDOW: Not right at this moment, but I'd
19 still like to keep that opportunity I requested this
20 morning. I don't want to get up when others haven't
21 had their chance.

22 HEARING OFFICER STUBCHAER: I know. But we're
23 getting close to you -- we are to you in the ordinary
24 course of events. So my question is --

25 MR. MADDOW: I didn't know we were doing it

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1 that way.

2 HEARING OFFICER STUBCHAER: I beg your pardon?
3 You have additional questions?

4 MR. MADDOW: I will -- I do not have them
5 ready at this moment, Mr. Stubchaer, because I was not
6 aware we were going back on to the list in that way.
7 The questions that I will have probably will be on the
8 order of five minutes worth of questions. But,
9 frankly, because I misunderstood your direction before
10 with regard to the list, I'm not prepared at this
11 moment.

12 HEARING OFFICER STUBCHAER: All right. How
13 long does -- Mr. Etheridge, how long do you estimate
14 your cross-examination will take?

15 MR. ETHERIDGE: I believe it will take
16 approximately 20 minutes.

17 HEARING OFFICER STUBCHAER: Mr. Turner?

18 MR. TURNER: I don't anticipate any
19 cross-examination at this time.

20 HEARING OFFICER STUBCHAER: All right.
21 Ms. Crothers?

22 MS. CROTHERS: Approximately 15 to 20
23 minutes.

24 HEARING OFFICER STUBCHAER: 15 or what?

25 MEMBER DEL PIERO: 15 to 20.

1 MS. CROTHERS: 15 to 20 minutes.

2 HEARING OFFICER STUBCHAER: Mr. Schulz?

3 UNIDENTIFIED LADY: Mr. Schulz isn't here,
4 but I can you that he will probably be about 15 or 20
5 minutes.

6 HEARING OFFICER STUBCHAER: Ms. Murray, you
7 already asked for an hour.

8 MS. MURRAY: Okay.

9 HEARING OFFICER STUBCHAER: Is that a
10 reasonable estimate?

11 MS. MURRAY: Ballpark figure.

12 HEARING OFFICER STUBCHAER: Stipulate we'll
13 get to you Monday.

14 All right. Ms. Crothers, are you ready to
15 begin?

16 MS. CROTHERS: Yes.

17 HEARING OFFICER STUBCHAER: While she's coming
18 up here, staff has asked me to announce that copies of
19 our Exhibit 15 the conference opinion on steelhead by
20 Fish and Wildlife Service for the Delta Wetlands are
21 available at the staff table for those who want them.
22 And you can get it after the hearing, don't all come up
23 now.

24 MR. SUTTON: Thank you.

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CROSS-EXAMINATION OF DELTA WETLANDS PROPERTIES
BY CALIFORNIA DEPARTMENT OF WATER RESOURCES
BY CATHY CROTHERS

MS. CROTHERS: Good afternoon. My name is
Cathy Crother's with the Department of Water Resources.

These questions are for -- I expect for
Mr. Easton, or Mr. Paff, or maybe Mr. Forkel and relate
to some operations questions. Can you all hear me?

This is with respect to State Water Resources
Control Board Standard Term 91. And under that term
the Board has recently clarified that project operation
can meet the Water Quality Control Plan and under
standard Federal constraints are deemed to be four
in-basin uses under that term. That's important to our
operations, because we use Term 91 to protect our
stored water rights.

You and your -- all though it's not specified
in your OCAP, Delta Wetlands stated they are not
proposing any diversions in the Delta -- any diversions
when the Delta is imbalanced and -- is that correct?

MR. PAFF: That is correct.

MS. CROTHERS: That's correct. Then it would
be appropriate for the Board to include in it --
include as a condition in any of the Delta Wetlands

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1 permits that they may grant that Delta Wetlands would
2 cease diverting when the Delta is imbalanced?

3 HEARING OFFICER STUBCHAER: Is that a
4 question?

5 MS. CROTHERS: That's a question for Mr. Paff.

6 MR. PAFF: That's correct. And I believe in
7 the agreement between ourselves and the Bureau of
8 Reclamation that has been stipulated to in that
9 agreement.

10 MS. CROTHERS: Thank you. I just wanted to
11 clarify that. When discharges for your project --
12 well, could discharges for your project have any
13 material adverse impacts on the quality of the water
14 available that would be exported by the State Water
15 Project? That would be for Mr. Forkel.

16 MR. FORKEL: Could you repeat the question? I
17 was writing something.

18 MS. CROTHERS: Could -- could -- could your
19 discharges by the Delta Wetlands Project have a
20 material adverse impact on the quality of the water
21 available to export by the State Water Project?

22 MR. FORKEL: Well, I think relying upon the
23 Draft EIR the analysis there shows that -- discusses
24 what the impacts would be. And I think it shows that
25 there isn't any significant unmitigatable impacts.

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1 MS. CROTHERS: If that is so, then, would
2 the -- if the Board were to impose a condition to
3 protect the State Water Project from potential adverse
4 impacts from the Delta Wetlands discharges that would
5 not have any -- would not have any significant impact
6 on Delta Wetlands's operations then?

7 MR. FORKEL: Well, I think you'd have to --
8 let me see what the term would actually be.

9 MS. CROTHERS: Well, it would be kind of a
10 general term that would just say, Delta Wetlands's
11 discharges would not be permitted if they had an
12 adverse impact on State Water Project diversions.

13 MR. FORKEL: Well, I -- our water quality
14 experts might be better to answer this, but I know the
15 analysis that was done included evaluations of what was
16 happening on the project compared to the no-project
17 condition. And there are oftentimes periods when we do
18 not operate and we create some benefits. And there are
19 times when we do operate where there are -- there are
20 benefits.

21 And I -- I think the modeling that's been done
22 shows that you would have to look at the whole picture.
23 You just couldn't say when we discharge you can't have
24 an impact, because there's going to be times when we're
25 going to have a slight impact. And there's going to be

1 times where we're going to have slight benefits. So I
2 think it's more appropriate to establish a term that
3 would allow the project to operate. And then consider
4 what the impacts are based upon a reasonable term.

5 MS. CROTHERS: Okay. Thank you. I think
6 that -- it's somewhat unknown really is what you're
7 saying, impacts from your discharges?

8 MR. FORKEL: Well, I'm just saying you can't
9 isolate that and say just looking at our discharge. I
10 think you have to look at the entire project. And
11 that's what the water quality chapter did and that's
12 what our water quality testimony did was try to look at
13 the bigger picture.

14 MS. CROTHERS: I guess the only reason I was
15 asking the question was to see if there would be any
16 problem with including a term that would be protective
17 of the State Water Project, water in terms of our --
18 your potential impacts for the discharges, it would be
19 a term -- a protective term if the impacts from these
20 discharges are not significant then there wouldn't be
21 an impact on your project with the term protecting the
22 State Water Project. That really wasn't a question.
23 I'm just trying to explain the question a little
24 better.

25 In the OCAP and in Mr. Easton's testimony he

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1 talked about the diversion Item 10, which relates to
2 topping off use of existing water rights established
3 under the riparian right between the appropriate right
4 and that this water be used for topping off.

5 What was the prior use of the water under the
6 existing rights?

7 MR. EASTON: Jim Easton. The prior use of
8 that water was for agricultural purposes, both riparian
9 and the licensed appropriative rights.

10 MS. CROTHERS: If the Delta Wetlands's
11 reservoirs are half -- say, this is an example: If
12 they're half full in the summer, how will you use the
13 water under these existing rights?

14 MR. EASTON: Water under the existing rights
15 would be used for replacing the water that was lost to
16 evaporation under the terms and conditions that were
17 established in the final operations criteria.

18 MS. CROTHERS: Then what precisely would be
19 the beneficial use served by using those existing
20 rights?

21 MR. EASTON: The beneficial use would be, as I
22 said, to replace the water that was lost to
23 evaporation.

24 MS. CROTHERS: Under your description of
25 the -- part of the benefits of the project in that

1 you're not using -- the islands wouldn't be using the
2 agricultural water, they wouldn't be diverting a
3 certain amount of water for agricultural purposes
4 during certain summer months.

5 I think you've included in the models a
6 five-percent increase outflow because of not having to
7 divert water for agricultural purposes. Does that
8 model then account for the fact that you might also
9 then be using that same water for the topping off?

10 DR. BROWN: I need a microphone. Russ Brown.
11 In the modeling we assume that the project would not be
12 diverting water under the previous agricultural uses.
13 And so this topping off that's been described in the
14 biological opinions and, apparently, in the OCAP was
15 not included in the simulation of the project.

16 MS. CROTHERS: Thank you. I'm skipping some
17 questions that have been answered already. I have some
18 questions on the water quality section and I think -- I
19 believe these would be for Dr. Kavanaugh and Dr. Brown.

20 In Dr. Kavanaugh's testimony he provided a
21 qualitative analysis that says it is unlikely that the
22 discharge from Delta Wetlands's reservoirs would have a
23 TOC value above 10.6 milligrams per liter.

24 Were you able to compare data from similarly
25 operated deep-flooded peat soil reservoirs?

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1 DR. BROWN: No. Do you know of one?

2 MS. CROTHERS: No.

3 DR. BROWN: I don't believe there are any.

4 DR. KAVANAUGH: She's talking about my
5 testimony.

6 DR. BROWN: Oh, sorry.

7 DR. KAVANAUGH: I appreciate you dropping in
8 though. Well, first I think we should clarify the
9 statement. What I put in my testimony in the 10.6 was
10 sort of a "what if?" Now, in order to exceed the
11 .8 milligrams per liter significance criteria you need
12 a TOC, or DOC in the reservoir of 10.6. So I'm not
13 saying that there's -- I mean I don't think it would
14 get up that high, but that's the context of that
15 statement.

16 With respect to the change in DOC, when you
17 put water onto peat soils there are references in the
18 literature to a number of cases where reservoirs have
19 been -- the water has been put on top of PV soils
20 around the world. Unfortunately, as far as I know the
21 DOC data was not measured. And this was done a number
22 of years ago and the only measurements I could find
23 were measurements of color.

24 And in at least two of the cases -- in fact,
25 all of the cases the change in color was relatively

1 modest over a time. And it's an AWWA Journal article
2 and could be referenced. I think it's in my testimony.
3 But I'm not aware of experiments where DOC has been
4 measured and shown to identify the kind of increases
5 that might be expected.

6 MS. CROTHERS: The Jones & Stokes Holland
7 Tract shallow pond experiment, were you able to use
8 that in any way to help reduce the uncertainties from
9 the flooding of this deep island -- the deep reservoir?

10 DR. KAVANAUGH: Well, again, I'll let
11 Dr. Brown talk about that again. But the way I
12 interpreted that experiment was that half a meter of
13 water was placed on this -- on the Holland Tract. And
14 the concentration of DOC increased up to about 40
15 milligrams per liter over time and then stabilized.

16 This increase was primarily due to contact
17 with vegetative biomass which is the primary source of
18 the DOC. When Dr. Brown undertook an analysis of that
19 the loading was the kind of numbers that he used to
20 estimate his quantity of DOC, which I independently
21 evaluated and came up with similar kinds of numbers.

22 But I felt that his experiments, certainly,
23 were supportive of the notion that if you take that
24 water you get a DOC with a half a meter. And now
25 you're going to put it in the reservoir with five to

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1 six meters that the concentration instead of 40 will be
2 five or six times less. So that you are getting a
3 delusion. An analogy I would use that's been turned
4 around a lot is the tea bag analogy.

5 If you put a tea bag into a cup of water you
6 get a very concentrated cup of tea. If you put the tea
7 bag in a 55-gallon drum you may not taste the tea. So
8 that's a delusion phenomenon that is critical to how we
9 think about this problem.

10 MS. CROTHERS: So that the maximum TOC --
11 DOC-- the chart you used a while ago with the 1.27
12 range, 1.4 to 1.27 was that the maximum TOC
13 concentration?

14 DR. KAVANAUGH: The .4 and 1.27 is a mass
15 calculation, the incremental mass of DOC that could be
16 produced from the four islands under the Delta Wetlands
17 Project.

18 MS. CROTHERS: Well, what do you expect the
19 maximum DOC concentration for the Delta Wetlands
20 discharges to be?

21 DR. KAVANAUGH: Well, the discharged
22 concentrations from the reservoir islands based on the
23 maximum numbers would be on the range -- the increase
24 would be something on the order of two to three
25 milligrams per liters.

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1 MS. CROTHERS: And --

2 DR. KAVANAUGH: So depending upon what the
3 diverted -- the DOC in the diverted water would be that
4 plus the two to three milligrams under my worse case
5 scenario. The concentration of DOC coming off the
6 habitat islands would be higher, because that would be
7 similar to a wetlands discharge and, perhaps, on the
8 order of what you see in drainage water.

9 MS. CROTHERS: Which is?

10 DR. KAVANAUGH: Well, it ranges from, say, 20
11 to 30 milligrams per liter DOC. So the amount of water
12 coming off the habitat islands is, of course, something
13 on the order of 10,000 acre feet per year. So the
14 quantity of DOC is, again, comparable coming off the
15 habitat islands as it is for the reservoir islands,
16 with a lot less water you have much higher
17 concentrations.

18 MS. CROTHERS: Would you expect the TOC in the
19 reservoir island described to be more or less reactive
20 to the DBP formation than water not in contact with
21 peat soil, or subject to algae blooms?

22 DR. KAVANAUGH: I looked at that question. I
23 don't think that it is an easy one to answer. My
24 professional opinion is that the DOC in the reservoir
25 islands will be less reactive than the DOC in

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1 agricultural drainage.

2 The agricultural drainage DOC is clearly shown
3 to be on a per gram of carbon basis about twice as
4 reactive as the DOC in the Sacramento River. Now the
5 water that is diverted onto the islands -- the
6 reservoir island under the Delta Wetlands Project is
7 going to have a DOC range ranging somewhere between
8 three to five. It is primarily river water, some
9 Sacramento River, some San Joaquin.

10 So the activity of that DOC is going to be
11 comparable to Sacramento, maybe a little worse.
12 Clearly better than what's -- what's -- what's in the
13 agricultural drainage. And then the incremental
14 increase, it's unclear as to what the activity of that
15 DOC will be, because of the variety of sources that
16 would contribute.

17 The final point here is, again, under
18 agricultural drainage conditions the DOC is highly
19 reactive. Under a reservoir storage condition you have
20 very different conditions in the soil, it's anaerobic
21 instead of the aerobic. What the DOC activity is going
22 to be coming out of the sediments is really unclear. I
23 suspect it will be a little less, but I can't verify
24 that.

25 MS. CROTHERS: So under the current operations

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1 Delta Wetlands could discharge water from reservoirs
2 in -- say, from 30 to possibly 90 days, I suppose.
3 Would you expect the DOC to remain the same as you
4 drawdown in the discharges?

5 DR. KAVANAUGH: Yes, I do, because the
6 increase in DOC will have occurred over the period of
7 storage. And the changeover, say, the 90-day period
8 would probably be fairly small. There might be some
9 slight increase in DOC as you lower the level.

10 MS. CROTHERS: Increase in the concentration?

11 DR. KAVANAUGH: In the concentration, yeah.

12 MS. CROTHERS: In the mitigation plan for --
13 for impacts to water quality, the mitigation plan calls
14 for monitoring and then to cease discharges if -- if
15 the monitoring shows increased levels that might be
16 harmful to water quality.

17 DR. BROWN: Almost. It does require
18 monitoring. And it requires a control of the amount of
19 water discharged off the reservoirs so that the mixture
20 of the reservoir discharge plus the rest of the export
21 does not exceed some change in concentration.

22 The change of the exports would be
23 proportionate to how much you're discharging. You may
24 not have to totally shutoff your discharges, you may
25 have to just turn it down.

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1 MS. CROTHERS: So then would you suspect that
2 there would be an impact on project yield from this
3 monitoring mitigation plan?

4 DR. BROWN: It will just lengthen the period
5 of discharge, possibly.

6 MS. CROTHERS: That concludes my questions.
7 Thank you.

8 HEARING OFFICER STUBCHAER: Okay. Thank you.
9 And Board Member Del Piero has a question before we
10 recess for the day.

11 ---oOo---

12 CROSS-EXAMINATION OF DELTA WETLANDS PROPERTIES

13 BY THE BOARD

14 MEMBER DEL PIERO: Yes. Feel free, gentlemen,
15 to jump in. Several of the individuals that
16 cross-examined you asked whether or not any of you knew
17 of an experience of, or had knowledge of a similar
18 surface reservoir built on peat soils.

19 I have a question and if -- are you familiar
20 with Franks Tract? Was there an increase in organic
21 carbon in the water taken at the pumps when that
22 flooded in '87? Does anybody know?

23 HEARING OFFICER STUBCHAER: This may not be
24 the correct panel to ask that question.

25 UNIDENTIFIED MAN: Franks Tract flooded in

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1 '38.

2 MEMBER DEL PIERO: Excuse me?

3 UNIDENTIFIED MAN: Franks Tract flooded in
4 '38.

5 MEMBER DEL PIERO: Little Franks Tract it was
6 '87, right? The small one, yeah, '87, right, in the
7 floods?

8 UNIDENTIFIED MAN: Somewhere in there.

9 MEMBER DEL PIERO: Yeah, the levee gave way.
10 Was there an increase? Does anybody know? It's still
11 underwater I think.

12 HEARING OFFICER STUBCHAER: I was just
13 wondering, Mr. Del Piero, one difference could be that
14 once the levees broke it still flushes twice a day with
15 the tides.

16 MEMBER DEL PIERO: Indeed, and so you aren't
17 going to realize the concentration alternatively there.

18 HEARING OFFICER STUBCHAER: It's a good
19 question I think.

20 MEMBER DEL PIERO: We're looking around for
21 something inundated with peat. No one knows I guess.
22 Okay.

23 HEARING OFFICER STUBCHAER: Thank you. All
24 right. We've already gone over those entities who have
25 yet to cross-examine. We will now recess until 9:00,

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1 Monday, July 14th -- wait, does staff you have any
2 announcements? None.

3 Okay. We're in recess.

4 (The proceedings concluded at 4:50 p.m.)

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REPORTER'S CERTIFICATE

STATE OF CALIFORNIA)
) ss.
COUNTY OF SACRAMENTO)

I, MARY R. GALLAGHER, certify that I was the Official Court Reporter for the proceedings named herein, and that as such reporter I reported in verbatim shorthand writing those proceedings; that I thereafter caused my shorthand writing to be reduced to typewriting, and the pages numbered 242 through 531 herein constitute a complete, true and correct record of the proceedings.

IN WITNESS WHEREOF, I have subscribed this certificate at Sacramento, California, on this 27th day of July, 1997.

MARY R. GALLAGHER, CSR #10749

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